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THE UNITED GAS IMPROVEMENT COMPANY,

PHILADELPHIA.

—•—

BUILDERS OF

THE STANDARD DOUBLE SUPERHEATER

LOWE WATER GAS APPARATUS.

—•—

ACCURATE MEASUREMENT

OF

AIR AND STEAM SUPPLY

(PATENTED),

AFFORDING { **PERFECT CONTROL OF GENERATOR FIRE CONDITIONS.**

PRODUCING { **UNIFORM RESULTS. HIGHEST EFFICIENCIES.**

THE AMERICAN
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ESTD.

VOL. CII., No. 9. NEW YORK, MARCH 1, 1915. WHOLE No. 2,073

PRESIDENT LEARNED'S ADDRESS AT THE 45TH ANNUAL MEETING OF THE NEW ENGLAND ASSOCIATION OF GAS ENGINEERS.

A HISTORY OF THE FIRST AMERICAN GAS ASSOCIATION.

This is the forty-fifth annual meeting of the New England Association of Gas Engineers, the oldest organization of gas men in this country. What successes it has achieved since that early beginning in 1871, when sixteen of the hardy sons of New England met to form this Association!

I want to welcome you to this gathering, and hope the meeting may prove of lasting benefit to all.

From a careful perusal of the records of this Association, I find that previous Presidents in their annual addresses have followed the beaten path, refreshing your memory with the doings of the previous year—the new things that have sprung up—and have commented upon the possibilities for the future of our industry.

With your kind indulgence, I want you to look backward with me into the history of this Association, in order that we may have a record, in published form, of many things which are now sealed between the covers of the records written by the Association's first Secretary, Mr. George B. Neal, of Charlestown, Mass. It is time these things were known and published, for the benefit of the younger men who are joining our ranks, and as a reminder to the older members of past happenings, many of them so pleasant to remember. It will be necessary to go into some detail, which I trust will not weary you, but which must be given for history's sake.

Two months before the outbreak of the Civil War, and fifty-four years ago to-day. the following circular was sent to the Massachusetts gas companies:

"BOSTON, February 18, 1861.

"To the.....Gas Light Co.:

"*Gentlemen:* At the request of the Committee on Manufacture of the General Court, your Corporation is desired to send a Representative to a conference of the Gas Companies of this State, to be held in Boston on Wednesday, February 20th, at 10 A. M., at the office of the Boston Gas Light Company, West street, for the purpose of considering the preparation of a law for the inspection of Meters, and the regulation of Gas Companies.

Asking your early attention to this subject, we remain,

Yours very respectfully,

WM. W. GREENOUGH,
for the Boston Gas Light Co.
M. C. BRYANT.
for the Lowell Gas Light Co.
GEORGE D. CABOT,
for the Lawrence Gas Light Co.
FRANCIS BROWN,
for the Salem Gas Light Co.
JOHN J. CLARKE,
for the Roxbury Gas Light Co."

What the outcome of this notice was the records do not state.

Ten years later, the first meeting of New England Gas Engineers was held at the office of W. W. Greenough, treasurer of the Boston Gas Light Company, 20 West street, February 2, 1871, for the purpose of forming an association.

Mr. Greenough stated that: "At an informal meeting of gentlemen connected with many of the gas companies in New England, held immediately after the funeral of the Hon. James B. Blake, late agent of the Worcester Gas Light Company, at the Bay State House, in the city of Worcester, a committee was appointed to draft a preamble and articles of agreement for an association of gas engineers, with authority to call a meeting to act upon the adoption of the same, and to organize an association under such *articles of agreement*, if deemed expedient."

In a letter received a month ago from Mr. E. C. Jones, president this year of the American Gas Institute, and a member of this Association for the past thirty-four years, the following is of interest as bearing directly upon the earlier history of this organization:

"The early history of the New England Association has always been very dear to me for the reason that my father had such an important part in it, and yet through his modesty and diffidence he took no prominent part in the beginning of the Association.

"When Mayor Blake was injured in the cellar of the purifying house at the Worcester Gas Works, the first thing he did before losing consciousness was to send to South Boston for my father, who immediately went to Worcester, and Mayor Blake asked him to take charge of things for him.

"I remember very well those two or three busy days when the debris was cleared away, and temporary connections were made with tin pipes, and one of the old purifiers was pieced together with boards and plaster of Paris, so as to get the works in operation as soon as possible.

"I was nine years old at the time, and I remember my father taking me to Worcester, and I remember the vast amount of hard work which was done to get the city lighted again, and I doubt very much if father even had time to attend Mayor Blake's funeral.

"When it became necessary to fill Mayor Blake's position as superintendent of the Worcester Company, my father was offered the position but declined it; and the only reward that he asked was that he might have the old leather arm chair which had been used by Mayor Blake at the gas works. This the directors gave him, and all in all it was a labor of love, and a piece of work splendidly done, of which there is no record."

In looking through the effects of his father, Alfred M. Norton, Mr. W. F. Norton, superintendent of the Nashua Light, Heat nnd Power Company, found last November the original circular of the above referred to (Preamble and Articles of Agreement), and the names of the gentlemen subscribed thereto, as follows:

PREAMBLE.

"*Whereas*, the manufacture and supply of gas has become one of the largest economic interests of the country; and, whereas, it is most important to the manufacturers and to the public that the best processes known shall be employed in its manufacture and distribution; and, whereas, it is most desirable to obtain the advantage of the experience of the gas engineers scattered throughout New England upon the various problems presented for consideration;—We, the undersigned, hereby agree to associate ourselves for the above named purpose, according to the following;

ARTICLES OF AGREEMENT.

1. The association shall be called the New England Association of Gas Engineers.

2. The annual meeting of the Association shall be held on the second Thursday of February in each year, at such hour and place as the Directors shall determine,

3. The officers of the Association shall be a President, two Vice-Presidents, a Secretary and Treasurer, who, with five other members of the Association elected for the purpose, shall constitute a Board of Directors.

4. Any New England gas engineer may become a member upon application to the Board of Directors and an election by three-quarters of the vote at any regular meeting of the Association, and by signing an agreement to pay such assessment as may be levied by the Board of Directors.

5. The administration of its affairs shall be entrusted to the officers of the institution, of whom four shall form a quorum for the transaction of business.

6. The Secretary and Treasures shall receive all moneys; he shall also notify all meetings, taking all minutes of the proceedings at all meetings of the Association, and enter them in proper books proprovided for the purpose. He shall write the correspondence, read minutes and notices at all meetings, and also papers and communications, if the authors wish it; report discussions and perform whatever other duties may be indicated in the regulations of the Association as appertaining to his department.

7. At any regular meeting of the Association, ten members shall be a quorum for the transaction of business.

8. All questions shall be decided by any convenient system of open voting, the chairman to have a second or casting vote when necessary. Questions of a personal nature shall be decided by ballot.

9. All papers read at the meetings of the Association must relate to matters directly or indirectly connected with the manufaeture of gas, and must be approved by the Board of Directors before being read.

10. All papers, models or drawings submitted to these meetings shall remain the property of the authors.

11. If any person proposed for membership, on being balloted for, shall be rejected, no notice shall be taken of the proposal in the minutes.

12. The annual contributions shall be payable in advance, at or before each general meeting, and no member whose contribution is in arrear shall be entitled to vote.

13. These articles may be altered or amended at any annual meeting, notice of such proposed change having been given at least one fortnight previous to such meeting.

Boston, Feb. 2nd, 1871.

Geo. Dwight,	Springfield	Gas	Light	Company.
Wm. W. Greenough,	Boston	"	"	"
John Andrew,	Chelsea	"	"	"
Andrew Mace,	Lynn	"	"	"
O. E. Cushing,	Lowell	"	"	"
H. F. Coggshall,	Fitchburg	"	"	"
Geo. B. Neal,	Charlestown	"	"	"
Edward Jones,	South Boston	"	"	"
F. C. Sherman,	Brookline	"	"	"
David Moore,	Salem	"	"	"
Alfred M. Norton,	East Boston	"	"	"
Wm. P, Brooks,	Dorchester	"	"	"
Charles F .Warren,	Manchester	"	"	"
Samuel G. Stiness,	Pawtucket	"	"	"
William A. Stedman,	Newport	"	"	"
Jas. H. Armington,	Providence	"	"	"

Before proceeding to a ballot for officers it was voted that the following persons be elected members of the Association, they not being present at the meeting:

William C. Tabor,	New Bedford	Gas	Light	Company.
Estes Howe,	Cambridge	"	"	"
William Yorke,	Portland	"	"	"
Thomas J. Pishon,	Roxbury	"	"	"
Geo. D. Cabot,	Lawrence	"	"	"
W. B. Durfee,	Fall River	"	"	"
John M. Hill,	Concord	"	"	"
L. P. Gerould,	Newton & Watertown	"	"	"
A. M. Giles,	Boston	"	"	"

At this meeting the following list of officers was elected;

President—W. W. Greenough.
Vice-Presidents—George Dwight, William Yorke.
Directors—John M. Hill, Jas. H. Armington, O. E. Cushing, Geo. D. Cabot, David Moore.
Secretary and Treasurer—Geo. B. Neal.

At the next meeting, held April 20, 1871, at the same place, the following fact is of interest: "Voted, that Col. Armington be requested to prepare a report upon a scale of sizes and lengths of pipes to be adopted by the several gas companies in New England, if they see fit, as uniform standards to be conformed to by gas fitters in piping buildings for gas, said report to be submitted for consideration at the next meeting of the Association.

"Voted, that the assessment, or contribution of each member, for the present year, be fixed at $10, payable on the first day of May, next."

The first address of the President, W. W. Greenough, was read at the meeting of July 25, 1871, held at the hall of the Boston Board of Trade, corner of Chauncey and Bedford streets, Boston. At this meeting twelve new members were elected:

Joseph P. Gill, Lewiston, Me.
Aaron Thompson, Woburn, Mass.
Malcom S. Greenough, Boston, Mass.
T. M. Cox, New Haven; Conn.
J. F. Harbison, Hartford, Conn.
C. A. Gerdenier, Bridgeport, Conn.
Jas. Porter, Greenfield, Mass.
Samuel Fowler, Westfield, Mass.
Wm. R. Plunkett, Pittsfield, Mass.
Wm. J. Miller. Bristol, R. I.
John Loveland, Westerly, R. I.
Wm. Gibson, Cambridge, Mass.

The first paper presented to the Association was by Mr. L. P. Gerould, of Newton and Watertown, setting forth the "Uses and Advantages Arising from the Use of the New Condenser, patented by Messrs. Babitt, Binney & Bierce, whereby in the new purification of gas water may be entirely dispensed with."

At the annual meeting of February 21, 1872, held at the hall of the Boston Board of Trade, twenty-two members being present, the membership fee was reduced to $5.00. Five new members were elected:

Geo. M. Dimmock, Springfield, Mass.
Everett C. Learned, New Britain, Conn.
Henry Rice, North Attleboro, Mass.
R. H. Harriman, Lawrence, Mass.
Steward Chase, Holyoke, Mass.

The first semi-annual meeting was held August 14, 1872, at the Atlantic House, Newport, R. I. The president, Mr. Greenough, was absent on a visit to Europe. Nineteen members were present. Seven new members were elected:

Benj. G. Raymond, Woonsocket, R. I.
David W. Crafts, Northampton, Mass.
R. C. McKenney, Chicopee, Mass.
J. A. Hadley, Meriden, Conn.
C. H. Nutt, Nashua, H. H.
Wm. C. Perry, Bangor, Me.
Jas. W. North, Augusta, Me.

At this meeting a "communication was received from Thos, J. Rowland, Esq., a celebrated builder of gas machinery, inviting those present to take a sail with him on board the steam yacht 'Day Dream' in the bay, as far as Point Judith and back, this afternoon." Voted, without a dissenting voice, to accept the invitation.

The meeting of the Association adjourned to 8 o'clock in the evening of August 14, 1872, and was not called to order until long after the hour appointed, the members having occupied more time than was expected in their excursion in the bay and visiting various points of interest in Newport.

The annual meeting of February 13th, 1873, was held in Boston, thirty-five members being present. Seven new members were elected:

Prof. E. W. Dimond, Dartmouth College, Hanover, N. H.
Edwin Evans, Lynn, Mass.
Chas. D. Lamson, Boston, Mass.
Horace A. Allyn, Brookline, Mass.
H. B. Field, Waterbury, Conn.
L. C. Handford, Norwalk, Conn.
Chas. H. Porter, Providence. R. I.

At this meeting Col. Armington read a paper prepared by him, accompanied by drawings, entitled "Notes on the Construction of a

Tank for a Telescopic Holder, Lately Constructed by the Providence Gas Company."

Also, at this time, the first gas statistics were asked for, "a committee of five being appointed by the chair to prepare a printed circular, to be sent to all the Engineers or Agents of the several gas companies in New England, asking for statistical information relative to those companies, such as length of mains, number of meters, number of public lamps, tons of coal carbonized, feet of gas made and sold, etc., etc., with such other inquiries as the committee may consider necessary and proper to make." The Secretary states that there were few responses to this appeal, many engineers being opposed to giving any information.

Mr. Greenough gave an interesting account of the Beckton works near London, which he visited the previous summer. Mr. Rowland extended an invitation to the members to view the workings of his new model of a steam stoker.

At the semi-annual meeting, held at Congress Hall, Portland, Me., August 25 of that year, two new members were elected:

Isaac R. Scott, Waltham, Mass.
J. F. Rogers, Jamaica Plains, Mass.

At this meeting the subject of accepting the membership of gas men outside of New England was fully discussed, and rejected. However, a vote was passed admitting to honorary membership gas engineers outside of New England.

During that year the National Gas Association was formed, which took in not only gas engineers, but manufacturers of gas machinery and supplies all over the country. This association afterwards became known as the American Gas Light Association, and is now the American Gas Institute.

At this time a member stated that he had considerable inconvenience from stopped standpipes. A very free discussion followed. "In connection with the above topic, the cause for the accumulation of napthalene in street mains, etc., was also considered and some suggestions were made as to a possible course to be pursued, not only to free the pipes from this substance, but also how to provide an effective remedy for the nuisance and evil. No definite decision was reached."

The annual meeting of February 12, 1874, was held at the Tremont House, Boston, 27 members being present. Seven new members were elected:

Jas. Harvey, Newburyport, Mass.
Wm. Tarbell, Milford, Mass.
B. B. Burbank, Reading, Mass.
Gideon Wood, New Bedford, Mass.
A. B. Slater, Providence, R. I.
C. F. Spaulding, Burlington, Vt.
Ogden Gilmor, Norwich, Conn.

Mr. Greenough, the president, declined re-election, having served three years; but his objection was overruled, and he reluctantly accepted the presidency for another year.

The semi-annual meeting of that year was held at Tyler Hall, New Haven, Conn. Among the number invited to attend this meeting—the same gentlemen being in the immediate vicinity—were Mr. Chas. H. Nettleton and Mr. William Henry White. Three new members were elected:

C. W. Corcoran, Gloucester, Mass.
B. H. Balcom, Waltham, Mass.
C. H. Nettleton, Birmingham, Conn.

At this meeting a letter from Prof. E. W. Dimond of Dartmouth College, Hanover, N. H., was read, in which it was stated that in Hanover the gas for illuminating purposes was manufactured from a heavy oil; the price charged being $7.00 per thousand, equal to $4.00 or $5.00 for gas manufactured from coal. The attention of the secretary was called particularly to the concluding portion of the professor's communication: "As far as my observation runs, people would complain if the price were only one dollar per thousand, and I don't know but they would if it should be given them, when in Birmingham, England, a few years since, gas was furnished at 3/6 per thousand and grumbling about the price was as common as among us."

At the evening session, Mr. F. C. Sherman read an interesting paper on the manufacture of sulphate of ammonia at Worcester.

At the fifth annual meeting, held February 11, 1875, at the Tremont House, Boston, Mr. Greenough positively declined re-election as president, having served four years, and since the organization of the Association. The following new officers were elected:

President—Geo. D. Cabot.
Vice-Presidents—O. D. Cushing, S. G. Stiness

Eight new members were elected:

John T. Bayliss, Malden and Melrose, Mass.
Chas. F. Smith, Marlboro, Mass.
Dudley T. Tilton, Newburyport, Mass.
David Brayton, North Bridgewater, Mass.
Lucius D. Rhoads, Holyoke, Mass.
Edward Gustine, Keene, N. H.
Wm. Badger, Concord, N. H.
Geo. L. Manchester, Easthampton, Mass.

At this meeting it was voted to amend Article II, so that same should read that the annual meeting should be held on the third Wednesday in February of each year, the same as it is to-day.

The first account of a banquet was at the annual meeting of 1875. It was held in the "Ladies' Ordinary" at the Tremont House, and the Secretary says: "The occasion was a very happy one, and will tend to promote good feeling and a better acquaintance among the members of the Association, and strengthen the ties of friendship between them and their brethren of the same profession residing outside of the New England States."

At many meetings our old enemy naphthalene was described as an "abominable pest." Long and heated discussions were held on the subject.

At the semi-annual meeting held August 18, 1875, one new member was elected:

C. S. Colbath, North Adams, Mass.

At the annual meeting February 16, 1876, there were fifty members present. At that time Mr. Neal, the Secretary, reported that there were 120 gas companies in the New England States. Eleven new members were elected:

W. K. Stratton, Haverhill, Mass.
H. A. Atwood, Dedham, Mass.
S. H. Rollins, Worcester, Mass.
B. F. Bass, Quincy, Mass.
W. Metcalf, Ware, Mass.
Edward Keith, Taunton, Mass.
L, W. Wells, Marblehead, Mass.
W. W. West, Exeter, N. H.
R. J. Monk, South Boston, Mass.
M. A. Howe, Leominster, Mass.
W. H. Bradley, Winsted, Conn.

At the annual meeting held February 21, 1877, forty-five members being present, Mr. Cabot declined re-election as President. The following officers were elected:

President—S. G. Stinese.
Vice-Presidents—F. C. Sherman. L. P. Gerould.

At this meeting the first honorary members were elected to the Association: Gen. Chas. Roome, President Manhattan Gas Light Company, New York, and G. W. Edge, Engineer, Jersey City Gas Light Company. Four new members were elected:

H. S. Crowell, Marlboro, Mass.
J. H. Burnham, East Boston, Mass.
Andrew Hutchinson, Providence, R. I.
Milton Jewett, Clinton, Mass.

At this meeting it was "Voted, that the AMERICAN GAS LIGHT JOURNAL be constituted the official organ of the New England Association of Gas Engineers.

At the semi-annual meeting, held August 15, 1877, at the Buckingham House, Portsmouth, N. H., Mr. Neal reported a membership of 75,

For two years Mr. A. B. Slater, of Providence, had taken the proceedings of the meetings stenographically. Major G. Warren Dresser, editor of the AMERICAN GAS LIGHT JOURNAL, offered to supply a stenographer, at his own expense, to relieve Mr. Slater from his arduous duties.

At the afternoon session, the first signs of disturbance in the district and in the country were mentioned. "Mr. Gerould stated that the Wren Gas Company, so called, had petitioned for leave to lay pipes in the streets of Newton, as a competetive company, but had not as yet obtained permission so to do." The Secretary stated that he was pleased to announce that the "Gas War" in Detroit had ended in a compromise between the two companies, each taking a separate district to supply with gas.

Some remarks were made at this session by our old and greatly beloved member, Col. C. F. Spaulding, who, though feeble, is still with us, having been confined to his home in Waltham for some time past. He said that he was making some experiments in heating the coal before charging his retorts, and claimed that, by so

doing, he could work off the gas from the coal in three hours as completely as in four hours by the ordinary method.

Mr. Rollins, of Worcester, made some interesting statements in regard to the registration of meters, and the results of his tests of them, showing that the changes in measurement in a majority of cases are in favor of the consumer.

The President said that: "In his experience the greater number of meters in use, especially large ones, did not register at all the gas consumed by the little taper flames which many people use during the night."

Mr. Slater, being called upon, gave a detailed description of the method employed in the city of Providence for lighting a portion of the streets by electricity. This, as you will note, was in August, 1877, thirty-seven years ago.

At the annual meeting of 1878 there were fifty-two members present. J. R. Thomas, engineer of the Williamsburg Gas Light Company, Williamsburg, N. Y., was elected to honorary membership. Ten new members were elected:

Thos. A. Williams, Bangor, Me.
C. T. Frost, Rockland, Me.
Geo. F. North, Augusta, Me.
Aaron Ackerman, Portsmouth, N. H.
W. D. Cadwell, Nashua, N. H.
L. P. Kimpton. St. Albans, Vt.
W. H. Frost, Plymouth, Mass.
Geo. D. Bill, Malden, Mass.
J. R. Todd, Natick, Mass.
A. W. Tarbell, Waltham, Mass.

Mr. Lamson at this time said: "I want to direct the attention of the gentlemen present to a scientific discovery which has been of great value to the whole world, and which I believe is of interest and value to all the gentlemen present. It is the use-of the telephone. I am very much interested indeed in all matters connected with electricity. We have at our works quite a number of things in which we make use of this wonderful agent; but hardly any of them are so interesting as the telephone. It is, as you know, a discovery (not an invention) by Professor Bell, and it is claiming the attention of scientific men all over the world, and if any of you gentlemen have places of business which it is desirable to connect together in a cheap and simple way. so that you can transmit messages between them, there is nothing better than the telephone. I presume it is familiar to you all. We have them between our two offices. We have them from the offices over to the holder at Roxbury, and all the holders are connected together in that way. They are very simple and very wonderful instruments."

The above is of special interest now, for within a month telephone communication across the continent has been established.

At the semi-annual meeting of that year, held at the Allyn House, Hartford, Conn., the subject of water gas is mentioned in the proceedings for the first time.

The Associotion was royally entertained by J. P. Harbison, the Secretary of the Hartford Gas Light Company, at his home during the evening, and the following day the "party went on board the little stern-wheel steamer 'Dexter' and spent the day on the beautiful Connecticut River, sailing down below Middletown and returning late in the afternoon."

The annual meeting in 1879 was held at the Tremont House, Boston, and two new members were elected:

J. W. Averill, Dover, N. H.
J. Q. A. Spear, Dorchester, Mass.

January 9, 1880, marked the date of the *First Directors'* meeting held at Young's Hotel; Mr. F. C. Sherman was invited to prepare a paper upon the manufacture of water gas to be read at the annual meeting. February 18 and 19 of that year, thirty-five years ago today, marked the date of the *First Annual Meeting* held in this room. It is a long time to meet in one place. there having been three exceptions only during this period when the Association has met in other places. Suggestions have been made from time to time, looking toward more spacious quarters, but we are still at the same old stand.

The following new officers were elected:

President—W. A. Stedman.
Vice-Presidents—L. P. Gerould, Chas. F. Spaulding.

One new member was elected:

E. B. Yorke, Lynn, Mass.

The semi-annual meeting of 1880 was held in North Adams, Mass., where Col. F. S. Richardson, then a young man, did the honors, and conducted a coaching party over the Hoosac Mountain.

At the annual meeting of 1881, W. A. Stedman was re-elected President and A. B. Slater and M. S. Greenough elected Vice-Presidents. Nine new members were elected:

John Cabot, Lawrence, Mass.
Edward C. Jones, South Boston, Mass.
C. F. Pritchard, Dedham and Hyde Park, Mass.
Robert B. Tabor, New Bedford, Mass.
David Boynton, Chicopee, Mass.
Samuel Fowler, Westfield, Mass.
W. H. Snow, Holyoke, Mass.
C. S. Spaulding, Brookline, Mass.
W. B. Durfee, Fall River, Mass.

At this meeting the Secretary, being paid no salary, was allowed $25 for incidental expenses.

The semi-annual meeting of 1881 was held at Point of Pines, Chelsea Beach, Mass. One note is of interest: "The electric light was spoken of very lightly, the members not seeming to think the subject worth discussing at this meeting."

The Directors of the New England Association of Gas Engineers met at the rooms of the Guild of Gas Managers, Mason Building, Boston, on January 14, 1882. This was the period of infancy for the Guild, but they evidently aspired to offices early in the game. The following offlcers were elected:

President—A. B. Slater.
Vice-Presidents—M. S. Greeuough, J. P. Harbison.

One new member was elected—Patrick Coyle, Charlestown, Mass.

The semi-annual meeting of 1882 was held August 12, at Waite's Hall, New Bedford. Mass. Mr. R. B. Tabor of New Bedford read a paper on "Gas Stoves for Cooking and Heating," which is well worth careful perusal, and may be found on page 107, AMERICAN GAS LIGHT JOURNAL of Sept. 2, 1882. Mr. Tabor blazed the way for a commercial business, though an association of this character was not formed until 23 years later. No papers on the above subject had been read before the Association, though the topic of gas stoves had been discussed by W. W. Goodwin and others at previous meetings.

Thirty-five years ago the sale of gas in the day time was at a low ebb—most of the gas sold for lighting purposes; now most of us are selling more gas in the day time for fuel than at night for lighting, and it needs no prophet to see that in the future this proportion will be even greater than it is at present.

Note Mr. Tabor's opening remarks in the above referred to paper—"I have been asked to say a few words with reference to gas stoves, their uses and practical advantages; but at the outset, let me broaden my subject, because in the relation of the experiences of our company, although mainly the results of gas stoves and domestic operations, the increase of sale is, of course, not wholly to be credited to their account. In commencing, however, I am reminded of a story told by Sojourner Truth, the negro revivalist, who, being present one day at a meeting of the Sorosis Sisters, in New York City, when the business of the meeting was the consideration of "Women's Rights," was called upon for a speech. Reluctantly rising, after repeated calls, and almost urged forward to the steps of the platform, she faced the expectant group, and, in her powerful style delivered the following—"Sisters, if you wants your rights, why don't you take 'em?" And, naturally enough, comes the conclusion if gas engineers and officers desire to take their rights in this matter of increasing their gas supply, just in proportion to their need or desire (I say need as well as desire advisedly in these days of competition), in that same proportion will it be necessary to give diligent attention to the sale of the heating powers of gaseous fuel.

"Too much attention has, perhaps, been given to the manager's duty as a gas maker to allow his full developments as a gas 'drummer,' but in his intervals of leisure the genus 'hated of all men' must act the part of traveling salesman, and filling the office with dainty contrivances must expatiate on the beauties of the kitchener, the delicacy of the flat iron heater, besides keeping his eye well on the make and the candle power. But seriously, an era of good feeling between the much abused community and the adherants of the gas meter party will be none of the least of the advantages of a better acquaintance with the wants and wishes of the consumer. And, short of giving the good people their gas, I am firmly persuaded nothing will do them so much good as showing them how to use it.

"Of American cook stoves five ranges are made—Goodwin's, with open flame under the oven; American Meter Company, Gas Retort Stove Company and James L. Sharp, with the Bunsen burner. All of these make the boiling stove, as also McDonald, of

Albany; The Novelty, of the Providence Gas Burner Company; the Old Dominion, of Burnham of Philadelphia, and Tift and Howard of New York. These, with slight exceptions, complete the list. The extreme convenience of the open flame under the range oven partly compensates for its extra fuel cost. The absolute certainty of successful cookery guarantees the sale of the ranges in every place where they can be put, even at the increased price."

The next morning the members, with ladies, sailed on the steamer "Monhansett" for Gay Head and Oak Bluffs, Martha's Vineyard, where they had dinner, and returned to New Bedford in the afternoon.

At the annual meeting of 1883 the same list of officers were elected as in 1882. Twelve new members were elected:

E. G. Pratt, North Attleboro, Mass.
T. R. Martin, Portsmouth, N. H.
H. B. Leach, Taunton, Mass.
J. L. Hallett, Springfield, Mass.
J. N. Stickney, Rockville, Conn.
C. L. Gerould, Manchester, N. H.
G. E. Wetherbee, Roxbury, Mass.
F. C. Blood. Ware, Mass.
W. A. Learned, Watertown, Mass.
J. A. Coffin, Gloucester, Mass.
A. M. Tarbell, Newton, Mass.
F. R. Davis, Athol, Mass.

I note the mention of a paper by one of the newly-elected members entitled, "Half-Hourly Observations of the Yield and Candle-Power of Gas," by W. A. Learned. In the discussion which followed the older members put him through the "third degree." He was one of those fellows who believed (at that time) in three-hour charges.

There seems to have been no semi-annual meeting in 1883.

In 1884, at the annual meeting, Mr. A. B. Slater, having served two years, declined re-election as President, and the following new officers were elected:

President—Malcolm S. Greenough.
Vice-Presidents—John P. Harbison, A. M. Norton.

Four new members were elected:

A. H. Barker, Bangor, Me.
A. D. Perry, Quincy, Mass.
Z. M. Jenks, Woonsocket, R. I.
F. S. Richardson, North Adams, Mass.

It appears that the last semi-annual meeting was held at North Adams, August 13 and 14, 1884, F. S. Richardson again doing the honors. After a vote of thanks to the North Adams Gas Light Company, and F. S. Richardson in particular, the Secretary notes the following: "The party then adjourned in all haste to the cars, and probably arrived home in safety, as up to this date none have been reported missing to the Secretary."

This was the year in which the Ohio Gas Light Association was formed,

At the annual meeting of 1885 Malcom S. Greenough was again made president, but Mr. Neal declined re-election as secretary, and Mr. Charles H. Nettleton was appointed in his place.

Four new members were elected:

A. F. Cooper.
C. J. R. Humphreys.
H. A. Norton.
W. A. Wood.

The annual meeting of 1886 was held at the Narragansett Hotel Providence, R. I. The foliowing list of officers were elected:

President—J. P. Harbison.
Vice-Presidents—A. M. Norton, R. B. Taber.

Two new members were elected:

Jas. Porter, Greenfield, Mass.
F. H. Parker, Burlington, Vt.

The annual meeting of 1887 was held at Youngs' Hotel, the same officers being re-elected. Three honorary members were elected:

Gen. A. Hickenlooper, Cincinnati, O,
Geo. A. McIlhenny, Washington, D. C.
Emerson McMillin, Columbus, O.

Five new members were elected:

Edward Hassett, Beverly, Mass.
Robert J. Long, Salem, Mass,
C. M. Jewett, Clinton, Mass.
Wm. Anderson, Marlboro, Mass.
Wm. Badger, Concord, N. H.

The annual meeting of 1888 was held at the Parker House Boston. The following officers were elected:

President—A. M. Norton.
Vice-Presidents—R. B. Taber, C. F. Prichard.

Seven new members were elected:

Malcolm Peters, Brockton, Mass.
W. G. Africa, Manchester, N. H.
J. H. Manchester, Bristol, R. I.
H. J. McNeil, Quincy, Mass.
H. S. Chase, Great Falls, N. H.
Ralph Woodward, Waltham, Mass.
A. K. Quinn, Newport, R. I.

For the annual meeting of 1889 the Association returned to Youngs' Hotel, and has continued to hold its meetings here ever since.

President—R. B. Taber,
Vice-Presidents—C. F. Prichard, H. A. Allyn.

Two honorary members were elected that year—Col. F. S. Benson, of Brooklyn, and Eugene Vanderpool of Newark, N. J.

Twelve new members were elected:

W. T. Sanborn, Dover, N. H.
W. R. Addicks, Boston, Mass.
Robert Amory, Brookline, Mass.
H. N. Bigelow, Clinton, Mass.
I. E. Coffin, Nantucket, Mass.
Sam'l J. Fowler, Westfield, Mass.
Geo. T. Goodno, Dedham, Mass.
H. H. Kelly, Greenfield, Mass.
Geo. F. Macmun, Natick, Mass.
Louis Maln, Marblehead, Mass.
A. B. Slater, Jr., Providence, R. I.
W. A. Stedman, Jr., Hartford, Conn.

The annual meeting of 1890 showed a change in the officers—the following being elected:

President—C. F. Prichard,
Vice-President—H. A. Allyn, W. A. Wood.

Eleven new members were elected:

A. C. Anthony, Providence, R. I.
Henry Boardman, Bangor, Me.
Andrew J. Horton, Brattleboro, Vt,
F. H. Lane, Wallingford, Conn.
H. M. Lane, Leominster, Mass.
F. W. Norton, Nashua, N. H.
E. J. Nutter, Milford, Mass.
J. J. Nutter, Milford, Mass.
G. M. Rossman, Keene, N. H.
L. A. Saville, Lexington, Mass.
W. H. Spaulding, Clinton, Mass.

In Mr. Prichard's annual address he made the following significant remark: "Contrary to what might naturally be expected from its age, this Association is composed largely of young men. With them is coming the scientific education which can be brought to bear more closely than in the past upon the daily results; and there is no reason to doubt but that the manhood of the Association will be all that its youth will lead one to expect."

For the next six years I simply give the names of officers and active members in order to make the record complete.

At the annual meeting in 1891 the following new officers were elected:

President—H. A. Allyn.
Vice-Presidents—W. A. Wood, C. H. Nettleton.
Secy. and Treas.—C. F. Prichard was appointed.

Mr. Nettleton declined re-election, having held the position for six years.

W. W. Greenough was elected to honorary membership.

Three new members were elected:

N. C. Dye, Rutland, Vt.
F. W. Jennings, South Framingham, Mass.
W. F. Thayer, Westfield, Mass.

1892—*President*—W. A. Wood.
Vice-Presidents—C. H. Nettleton, Z. M. Jenks.

Two honorary members were elected, Geo. D. Cabot and Col. Jas. H. Armington, and eight new members:

R. W. Bush, South Boston, Mass.
J. F. Campbell, Eastport, Me.
W. E. Fette, Boston, Mass.
W. H. Hayden, Bath, Me.
A. C. Humphreys, Fall River, Mass.
D. W. McCarthy, Wakefield, Mass.
A. R. Willard, Greenfield, Mass.
W. E. McKay, Boston, Mass.

1893— *President*—Charles H. Nettleton.
Vice-Presidents—C. D. Lamson, S. J. Fowler.

Five new members were elected:

T. J. Hintze, Chelsea, Mass.
J. E. Nute, Fall River, Mass.
C. D. Sherman, New Haven, Conn.
Louis Bartlett, Cottage City, Mass.
C. M. Gerdenier, Bridgeport, Conn.

1894— The same officers were elected as for the last year.

Five new members elected:

A. E. Davis, Ware, Mass.
E. B. Mooney, Brockton, Mass.
F. D. Page, Fitchburg, Mass.
A. J. Purinton, Stamford, Conn.
C. D. Woodruff, Allston, Mass.

1895— *President*—C. D. Lamson.
Vice-Presidents—S. J. Fowler, W. R. Addicks.

Two honorary members were elected—A. C. Wood, of Syracuse, N. Y., and T. F. Rowland, Brooklyn—and eight new members:

Walton Clark, Concord, N. H.
Carl H. Graf, Lawrence, Mass.
J. A. Gould, Boston, Mass.
C. S. Knapp, Marblehead, Mass.
W. F. Norton, Nashua, N. H.
C. H. Nutting, Chicopee, Mass.
J. A. Walton, Stamford, Conn.
F. H. Shelton, Lewiston, Me.

1896— The same officers were elected as for the last year.

Six new members elected:

H. K. Morrison, Concord, N. H.
D. F. Burritt, Rockville, Conn.
G. E. Cowperthwaite, Danbury, Conn.
J. Dickens, Newburyport, Mass.
S. Hurlburt, Norwich, Conn.
G. W. Mansfield, Salem, Mass.

Mr. C. F. Prichard filled the position of Secretary and Treasurer for eight years, or until February, 1899, when Mr. N. W. Gifford then of New Bedford, now of East Boston, was appointed, and has filled this position for fifteen years.

In presenting this lengthy detail of the Association's history up to 1897, I have purposely omitted from the lists the names of gentlemen who served as Directors, naming only presidents, vice-presidents, secretaries and treasurers and active members elected, as giving the entire list of names would make a paper of extreme length.

All but one of the gentlemen (Mr. Malcolm S. Greenough), who so ably represented the Association as presidents up to the close of 1891 have passed away. All of the later presidents, with three exceptions (Mr. J. A. Coffin, Mr. F. S. Richardson and Mr. C. D. Lamson) are alike and in good health. Since its foundation the Association has had twenty-six presidents, thirteen of whom are still living.

In the Proceedings for 1913-14, on page 294 is given the list of presidents and their time of service since 1871; also the list of secretaries since that date. The Proceedings for the past eighteen years have been published in book form, and should be in your files. It is therefore, unnecessary to refer to them in this address.

Looking back over the forty-four years of the Association's existence, we note the name of but one member who joined during the first ten years who is active in the gas business today—Charles H. Nettleton, now of Derby and New Haven, then of Birmingham, who joined in 1874; Col. C. F. Spaulding, now of Waltham, then of Burlington, Vt.' who joined the same year, has retired, owing to feeble health. Malcolm S. Greenough, of Boston, who joined in 1871, is not in the gas business today. All of these pioneers are honorary members of the Association.

In order to make a complete record of the honorary members, and the date of their election, the following list is given:

1877—*Gen. Chas. Roome, President Manhattan Gas Light Company, New York city.
1877—*Geo. W. Edge, engineer, Jersey City Gas Light Compauy, Jersey City.
1878—*Jos. R. Thomas, gas engineer and editor AMERICAN GAS LIGHT JOURNAL.
1887—*Gen. Andrew Hickenlooper, formerly president Cincinnati G. & M. Co., 838 Dayton street, Cincinnati, O.
1887—*George McIlhenny, Washington, D. C.
1887—Emerson McMillin, 40 Wall street, New York city.
1889—Col. F. S. Benson, St. Marks ave. Hotel, Brooklyn, N. Y.
1889—*Eugene Vanderpool, Newark N. J.
1891—*Wm. W. Greenough, ex-treas. and engineer, Boston Gas Light Company, Boston.
1891—*Wm. Henry White, Cons. Gas engineer, 62 Wall street, New York, N. Y.
1892—*Geo. D. Cabot, Director Lawrence Gas Company, Lawrence, Mass.
1892—*Col. Jas. H. Armington, con. engineer, 3226 Pawtucket ave., Providence, R. I.
1895—*Austin C. Wood (retired), 216 North West street, Syracuse, N. Y.
1895—*Thos. F. Rowland. President Continental Iron Works, Brooklyn, N. Y.
1898—*Wm. A. Stedman, V. P. and General Manager Flatbush Gas Light Company, Brooklyn, N. Y.
1903—*A. B. Slater, Providence, R. I.
1904—W. H. Bradley, Chief Engineer Consolidated Gas Company, 130 E. 15th street, New York.
1905—*F. C. Sherman, Consulting Engineer New Haven Gas Light Company, New Haven, Conn.
1910—Malcolm S. Greenough, Boston, Mass.
1911—Col. C. F. Spaulding, Waltham, Mass.
1913—*C. D. Lamson, Worcester, Mass.
1913—Charles H. Nettleton, Derby, Conn.
1913—W. R. Addicks, New York City.

* Deceased.

The membership of the Association has increased but little in the past fifteen years. Though there has been an average of fifteen new members join each year, for the past twenty years the many deaths and some withdrawals have kept the membership down.

Last October we sent out about one hundred letters to presidents and managers of New England gas companies, inviting them to become members of our Association. There has been quite a generous response to these letters, and we have had forty-three applications for membership. This is more than in any previous year of the Association's history. There have been five active and two associate withdrawals.

If our membership continues to increase as it has done the past year, this room will not be large enough for our meetings and we shall be forced to seek more ample quarters.

The Membership of March 1, 1914, was		And of February 18, 1915,	
Honorary members	8		7
Active members	141		163
Associate members	91		105
	240		275

Showing a net gain of 35 members.

The hand of death has taken from us but two of our number this year—one active and one associate member.

Charles Dudley Lamson, almost a charter member of this Association, joining in 1873, and an honorary member of one year's standing, passed away on Lincoln's Birthday, February 12, 1915, at his home in Worcester. His funeral was held last Monday, the interment being in Mount Auburn cemetery, Cambridge.

A memorial to be inscribed on the records of this meeting to the honor of a long and useful life is in the hands of a competent committee—Messrs. Charles H. Nettleton, W. A. Wood, and S. J. Fowler.

D. D. Russell, of the James Russell Boiler Works, South Boston, and an associate member of the Association, marks the second, and only death, for the year.

Captain W. E. McKay and James N. Spear will act as a committee on resolutions.

The record of the past year would be incomplete if I omitted to

refer to the death of Mr. Forrest E. Barker, Chairman of the Board of Gas and Electric Light Commissioners of Massachusetts, who, though not a member of this Association, was a regular attendant at its meetings, an occasional guest at its banquets and personally known to and esteemed by many of its members.

Massachusetts was the first state to establish a Commission for the regulation of lighting utilities, and Mr. Barker as a member of the Legislature of 1885 was practically the father of the measure. Governor Robinson appointed him one of the original members of the Board in 1885, and he served continuously until his decease, and for the last twenty years as Chairman of the Board.

As a member of the Commission from its inception, Mr. Barker had, so to speak, to blaze the trail for the supervision of lighting utilities, and with the growth of the business the problems coming before the Commission increased both in number and complexity as the years rolled by. During all these years Mr. Barker was a careful, painstaking student of the technical side of the industries under his supervision, as well as of the relations existing between them and his State and the committees they served. He was thereby especially well equipped to discuss and decide the many questions arising out of the functions of the Commission. It is probably within bounds to say that his was the master mind in all these discussions and decisions, and the fact that the principles involved and the policies adopted by the Massachusetts Board have in a large measure, served as models for the Commissions of other states, is certainly to the credit of his clear insight and his sound judgment. His passing is a distinct loss to the Massachusetts members of the New England Association, and to the whole gas industry as well, and in the language of his fellow workers on the Board I repeat—"Barker! silent, deep thinker; steady courageous pilot; master builder of a wise public policy for a proud Commonwealth; all hail and farewell!"

I want to thank you for your kind attention to this long historical and statistical address, but hope this meeting may prove beneficial to us all, even though it has had a dry beginning. The papers to be presented, and the discussions on them, will, I trust, help to solve some of our problems, sending us to our homes with the realization that there are many wiser men in the profession than we are, and that we have still some heights to climb, some difficulties to overcome; but assured that with faith and zeal we too shall be conquerors.

Blast-Furnace Gas to Heat Coke Ovens.

One of the last steps toward fuel economy in blast-furnace plants is the use of blast-furnace gases to heat by-product coke ovens, the higher heat value coke-oven gas to be used where the low value blast-furnace gas could not. Professor Simmersbach of Breslau, an authority on blast-furnace and coke-oven products, recently published in "Stahl und Eisen" a paper giving the results of some trials at Mûlheim on the Ruhr, on Koppers ovens.

Two tests were made on an oven 32 feet 9½ inches long, 8 feet 6 inches high, and 19½ inches average width. The first test was with the usual coking time, and the second with the shortest coking time possible. In both tests similar coal was used, and as the coke in the two cases was of the same nature, the results are comparable.

TABLE 1.—*Details of the Charges in Comparative Tests.*

Coal.	Test 1.	Test 2.
Moisture, per cent	13.10	13.40
Volatile matter, per cent	23.86	23.75
Ash, per cent	6.82	6.38
Oven Charge.		
Dry coal, kilograms	7,647	7,620
Water, kilograms	1,153	1,180
Moist coal, kilograms	8,800	8,800
Coke.		
Ash, per cent	9.01	8.76
Volatile matter, per cent	3.72	3.91

The coking time in the first test was 29 hours, the coke not pushed out until the end of 30 hours, but no gas was burned the last hour. For the second test the time was 25 hours. Temperatures were taken every half hour in six different places. Fig. 1 shows temperatures during first test, the full line those in the middle of the charge, 3 feet 3½ inches above the bottom of the oven, the dotted line those in the space above the charge, 4 inches below the roof. Fig. 2 shows similar readings in the second test. The average temperature in the heating flue in the first test was 1125° C., in the second 1173°.

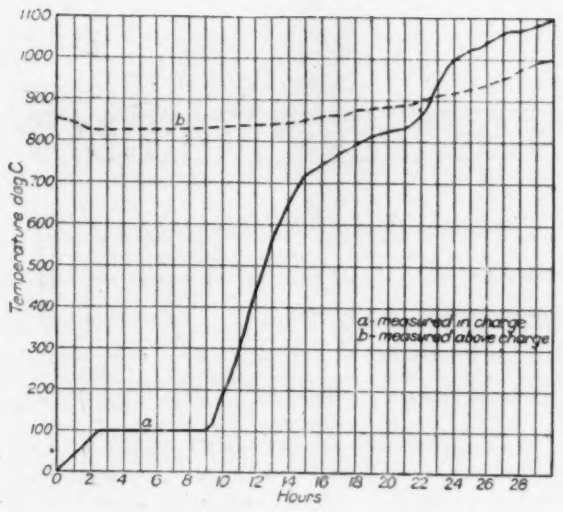

Fig. 1.—Temperatures in Oven; Test No. 1.

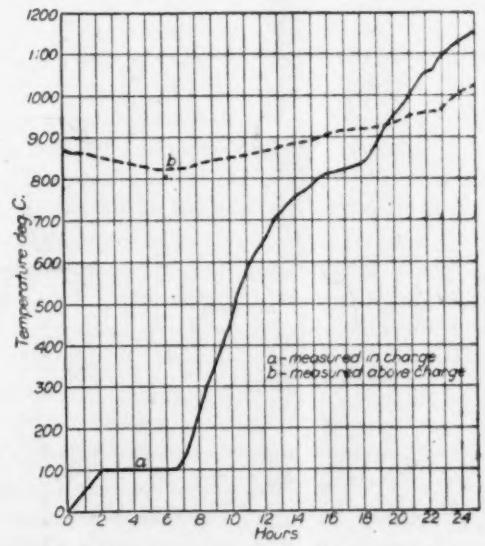

Fig. 2.—Temperatures in Oven; Test No. 2.

The charge was heated more slowly in the first test, as indicated by the evaporation of the moisture of the charge, which took 8½ hours in the first and 6½ hours in the second. Further in the first test 1000° C. was reached at the end of 24 hours, and in the second in 21 hours; the highest temperature reached in the charge was 1080° C. after 29 hours, but in the second test this temperature was obtained in less than 23 hours, and the maximum, 1150° C., in 25 hours. The temperatures in the gas space above the charge show similar conditions. The critical temperature for ammonia decomposition (800°–900°) was reached in test No. 1 in 22 hours, in the second test in 16 hours. In the first test it remained 7 hours above this temperature, and in the second 9 hours, a condition deserving serious consideration. The average temperature of the pre-heated blast-furnace gas in the first test was 1022° C., varying from 990 to 1070°; that of the air was 1044° C., varying from 1010 to 1090°. With the second test the average temperature in the gas regenerator was 922° C., and in the air chamber 966°. The waste gas temperature in both tests increased about the same amount during the coking time, in the first test from 240 to 280°, and in the second from 310 to 360°.

Compared with heating with coke-oven gas it is found that the temperature of the charge is considerably higher, at a given period of the coaking time, when using blast-furnace gas. This is shown in Table 2, test No. 1, used for comparison. Toward the end the temperatures come together because less heat is then used for distillation than for radiation, and the oven taking blast-furnace gas, with its average top temperature 150° higher, is at a disadvantage. Calculation shows that blast-furnace gas gives 44% more products of combustion at the same temperature that coke-oven gas, using the analyses of the gases in the tests, which with the same heating surface will give better heat transfer. Also the composition of the products of combustion and the specific heat of the constituents, show that at 1,100° C. the heat contents from 1 cubic metre of blast-

(*Continued on page 138*)

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A. M. CALLENDER, Vice-President and Treasurer.
CHARLES H. WADELTON, Secretary and Manager.

SANFORD K. CAMPBELL, Editor.

NEW YORK, MONDAY, MARCH 1, 1915.

Put the Blame Where It Belongs.

The investigations on the effect of gas lighting upon colored fabrics, undertaken by the British Commercial Gas Association (an abstract of their reports was printed in last week's issue of the JOURNAL) shows that society wide awake and in touch with all that developes in our business. Evidently the inquiry was undertaken to disprove statements that gas lighting was responsible for the fading of fabrics in warehouses and shops where gas is used; and only by such carefully planned tests could authoritative data be gotten. The results reported are even more favorable than we would have anticipated, especially in the test where the colored materials were exposed to the products of combustion. And speaking of the overlapping of association work, is this not a case in which a "commercial" body undertook an engineering investigation?

The Investigation of the United Gas Improvement Company.

It is reported from Washington that President Bodine of the United Gas Improvement Company has been in consultation with Assistant Attorney-General Todd, in reference to the suit that has been reported the Government intends to file against his company. It is understood that an agreement has been reached by which the company is allowed to submit certain documents with reference to its contracts with other companies, the legality and propriety of which certain complainants to the Department of Justice have questioned.

Irrespective of any difference of opinion which may exist between the Department of Justice and counsel for the United Gas Improvement Company, it is said at the department that every effort is being made by the administration to be of service to business, so far as may be consistent with the laws, and that if the company can arrange the details of its business concerning the Welsbach Company and other companies, the Government will not file a suit under the Sherman anti-trust act, such as has been suggested.

New York Gas Meeters.

This year's Ladies' Night of the New York Section Gas Meeters drew a rainy evening but a good sized gathering in spite of that. About 80 ladies and "Meeters" sat at the banquet in the ballroom on the 24th floor of the Hotel McAlpin, on Wednesday evening last, and enjoyed themselves in various ways until 1 A.M. Thursday. The dinner was served in the McAlpin's usual good style. After the coffee Chairman Campbell spoke of the women's organization of "Gas Meeters Helpers," with its motto "Good Housekeeping" and its button showing a kitchen clock with the hands pointing to six o'clock. "Pop" Mason also spoke briefly in his entertaining way, and then came the real fun of the night, the "blind" auction of the packages brought by those attending. The auctioneers were John M. Brock and W. S. Guitteau, and that they knew their business was proven by results. They sold some 70 parcels at an average price of about one dollar each, and kept their customers laughing all the way. Each package was opened as soon as sold, and the contents were amusing, even if in some cases also useful. When it was over the two heroes, Brock and Guitteau, were decorated with the Iron Cross for effrontery.

Then dancing was the order, and under direction of S. Tully Wilson, we "tripped the light fantastic" until the orchestra was too tired to continue. It is evident that the Meeters are damp proof.

The Oldest American Gas Association.

President Learned's address to the New England Association of Gas Engineers was a happy thought, as it was important that the pioneer association have a continuous authoratative record of its early activities. The proceedings of technical societies have more than just sentimental value, as not a few so called new processes or inventions have, by their perusal, been found to have been anticipated long before. The JOURNAL was pleased to be able to supply some of the old records needed by Mr. Learned to complete the story, and thanks him for the generous acknowledgement made us. We have always insisted on the value of State and District Associations, and place that of New England not only as the oldest, but also first in work done for the industry.

Why Must Their Competitors?

In three decisions lately rendered the up-state New York Public Service Commission has refused to order a Natural Gas Company to take on new customers, in order, as it says, to protect the present sixty-eight thousand consumers from possible deficient gas pressure and insufficient supply. It was brought out in the hearings that nearly 2,000 applications for service were on file with the company.

We have been under the impression that if a company making gas refused to run main extensions or to make service connections for new consumers because it had about reached the capacity of its manufacturing equipment or its distribution system, it would be told that its acceptance of a franchise carried with it an obligation to furnish gas to all applicants. It would seem but fair to *compel* the company selling natural gas to get enough, even if at some additional expense, to supply all who ask for it. If not, why must their competitors?

[OFFICIAL NOTICE.]

Indiana Gas Association.

OFFICE OF THE SECRETARY.
NEW ALBANY, IND., Feb. 4, 1915.

The annual meeting of the Indiana Gas Association will be held at the Claypool Hotel, Wednesday and Thursday, March 10th and 11th. Mr. A. C. Blinn, President, will preside.

On Wednesday evening, March 10th, a banquet and cabaret will be given at the Claypool Hotel, for which there will be a charge of $3.00 per plate.

The papers to be read are as follows:

"Appraisal of Public Utility Properties," by Wm. G. Woolfolk.
"Industrial Gas," by J. C. Shephard.
"Gas Rates," by J. H. Maxon.
"Application of By-Product Coke Ovens to the Gas Industry," by J. D. Forrest.
"Industrial Safety," by Chas. B. Scott.
"Comparative Costs of Gas and Electricity for Domestic Purposes," by B. K. Cash.

Members of sister associations are extended a cordial invitation to be present. Those connected with the gas industry in Indiana are especially urged to be present and render their assistance in making our association meeting a success.

JAMES W. DUNBAR, Secretary-Treasurer.

SPECIAL ENGLISH CORRESPONDENCE.

Monthly Letter From Norton H. Humphrys, Salisbury, England.

THE SHADOWS OF THE WAR CLOUDS.—THINGS IN GENERAL AND COKE IN PARTICULAR.—MANTLES AND CLEAR GLASS.

During some 33 years I have been accustomed, at this time of the year, to offer comment on the position of our industry, as indicated by the published accounts for the half year ended on the previous 31st December. But on this occasion it would be useless to follow that course, because conditions have been so abnormal that the working over the last 6 months is absolutely without precedent. The usual system and order which enables accurate working statistics to be filed week after week, is replaced by special arrangements according to each day's contingencies. We cannot expect that our country can engage in naval and military operations of the class and magnitude now in progress, without the effects of the same being felt in every crook and corner of our commercial and social system. The only wonder is that they are not more evident in the way of shortage of the actual necessaries of life or other public troubles, but as a matter of fact there has been no actual distress worth mentioning and nothing in the way of panic prices for food. The effects are evident in various ways in connection with the operations incidental to the manufacture and supply of gas. The first pinch came early in August, in the form of the withdrawal of a large proportion of the heavy labor employed in the retort houses. These men were greatly in favor with the recruiting officers, and many gas engineers (myself among the number) lost over 50% of the total. Some assistance could be obtained from yard men and the outside staff, but the result was that a class of labor for which it is at any time difficult to find reliable substitutes, was to some extent at the mercy of the odd jobber and street corner loafer. The next thing was the large demand for unskilled labor at the camps and military centres, which was met by offering panic rates of wage, easy supervision, and other privileges, which not only drained the whole neighborhood of surplus laborers, but thoroughly demoralized those who remained at their posts, not only rendering important advances in wages a necessity, but making it impossible to get satisfactory or efficient service at any price. Then the military authorities took up something very much like entire control of the whole railway system of the country. They have not interfered with the passenger traffic to any great extent, but sometimes stations have been closed to truck traffic for days at a stretch. The consequence of this action, coupled with the shortage of coast freightage due to the commandeering of coast steamers, is to cause most serious inconvenience, because probably no industry or manufacturing centre is more dependent on the railway than the gas companies. They get the whole of their material by rail (with the exception of those on the coast, who may have an open sea way) and depend on the same means to get rid of coke, tar and sulphate. I could give many instances of empty coal stores, congested coke yards, full storage wells, of residuals being delivered 20 miles by road tractor, and of coal fetched by the same means. Strong pressure has been exercised in influential quarters with a view of obtaining some amelioration, and as we are now approaching the season of less consumption, relief may be reasonably expected. It has been thought expedient to order a slashing reduction in respect to all high power lights, unless used in closed buildings, especially in the seaside towns and places within sight of the coast line. Even in regard to inland towns all outside shop lamps, flashing advertising signs, flares, brilliant lighting of railway depots, esplanades, important thoroughfares, etc., is reduced one-half or one-third. The heaviest sufferers from this cause are the places where high power lighting has been most extensive, such as the Metropolis, or the high class watering places, and health resorts. In small towns the limitation is usually unimportant, because at normal times the inhabitants do not go in largely for excessive or ornamental lighting. Mainlaying and other work calling for large gangs of unskilled laborers is postponed, unless of urgent necessity, as contractors will not give estimates or tenders for work of that class. This applies to many lines of gas works' repairs, with the result that while manufacturing and distributing costs have tended to increase, by reason of the rise in prices of labor and material, rigid economy in the way of repairs has been a necessity, rather than choice. When the whole staff is wanted in the retort house and purifying houses, anything in the way of painting, renewing or repairing, cleaning up, such as is the rule in all well managed gas works, has to go by the board, in many instances undesirable accumulation in this direction is the result.

Special prominence is usually given to the affairs of the Metropolitan gas companies, not merely on account of their magnitude, but as representing in a general way, the position of gas affairs throughout the country. On this occasion the rule does not apply. The experiences in London, on account of the reduction in lighting, has been a reduced output of gas to the extent of 5%, as compared with the second half of 1913. There have been various experiences in different parts of the country, but, on the whole, a decided increase in output. Extra expenses coupled with a decreased output are a serious drawback, which is not so evident if there is an increased sale, which means additional profit. Notwithstanding the reduced lighting in centres of military activity, the increased sale of gas has been 10, 15 or even 20%. The London gas industry has suffered heavily by a bad market for coke, involving a reduction of 33% on that item, and this experience, again, has been individual rather than general. Many undertakings have been able to follow the increased cost of coal, and to report important advances in the price received for coke. On this point there is more to say later on. Quite a lot of the difficulties, however, press alike on large and small, and many find that they have not earned the usual dividends. The London companies have to raise the price of gas, and as balances to the credit of profit and loss become depleted, there will be a considerable following on that line.

The serious coke slump in London and other large producing centres has naturally attracted some attention, and been much under discussion at the meetings of gas works employees. Several different explanations have been put forward, and as many remedies suggested. Meanwhile it may be mentioned that the question appears likely to answer itself, With the rise in the price of coal and the difficulty of obtaining the same when ordered, the local coke yard is becoming the popular place of resort, and gentlemen who were offering coke at a take-it-away price a few months since, are to-day raising prices and withdrawing all special quotations. One or two points may be noted. The high price of oil over 1914 led to the partial or entire closing of many water gas plants, with the result that an important double barrelled increase was thrown on the market. There was the extra make of coal gas and the quantity of coke not wanted in the water gas house, aggravated in some instances by the additional output of gas. The war seems to have had the effect of increasing the production of slack and coal screenings, possibly due to the increased demand for screened coal, and this cheap fuel has successfully competed with coke for steam raising and manufacturing processes. Some gas managers, to their sorrow, have listened to the voice of the charmer and purchased consignments of this class of material, in the belief that it would give a good yield of gas and good coke, and could be handled without trouble in the retort house. The results, it need hardly be said, rarely offer inducement for a repeat order. Some authorities blame the commercial methods, or more correctly, the absence of anything worthy or the name in regard to selling methods, and say that with competent push the whole of the product can be disposed of. In this connection it may be remembered I have always maintained, in these columns, that it is quite possible to get the people to use the gas, and to use the coke that is an unavoidable residual. Others complain of the quality of the product, and say that gas engineers think only of a large make of gas, and that a little attention to the quality of the coke would work wonders. They blame a large percentage of water and incombustible ash as the root of the difficulty, by acting as a deterrent to the use of coke. On the first point, if a sample of gas coke is found to be unduly saturated with water—a point which has never been satisfactorily substantiated although direct evidence can easily be obtained—it is useless for the gas works' manager to deny the soft impeachment. But as regards ash, the case is different. No one would think of adulterating coke with cheap incombustible matter as a means of showing better selling results. So far from profiting out of ash, the gas company has been compelled to pay the full market price of coal for it. Then we are told we should use coals containing a small percentage of ash, but not informed where such fuel is obtainable. Most concerns are restricted by commercial considerations to particular kinds of coal. No doubt the conscience of the coal vendor is very much more elastic at times of scarcity, in the matter of honesty as regards clean coal. But this applies

equally to all kinds of coal, and the worst offenders in this respect appear to find a market. Why should a degree of purity be demanded for coke that is not asked for in the case of coal? There is no doubt but that coke quenched by smothering in a closed vessel is of superior quality to that drenched with water in the usual way, but whether the public will be inclined to appreciate the extra quality of dry cooled coke to the extent of paying a price sufficient to cover the extra cost, remains to be proved. Some people seem to think that the man in the street is a keen observer of the comparative value of fuels, but this is merely a pious opinion unsupported by fact. There is no instance on record of the supply of superior fuel being proved an unqualified commercial success.

Several troubles were prophecied in August and Septemher, but fortunately many of them did not, and have not yet, materialized. One was the question of the supply of clear globes and mantles. Many large users were led to rush into the market with a view to laying in a stock, with the usual effects, a temporary and artificial shortage with increased prices. Some authorities went so far as to say that in a few months the supply of thorium would be exhausted, and there would be no possibility of continuing the incandescent line of gas lighting, and it would be necessary to go back to the flat flame. This scare flickered out, and nothing has been heard of it these 3 or 4 months. Meanwhile prices of mantles have nearly resumed normal lines, and there is no difficulty in getting orders filled. In no case has it been necessary to limit supplies, and in nearly every instance the maintenance department has been kept in full swing. The reduction in high power lighting will mean a marked decrease as regards special sizes of mantles made for that purpose, but will not materially effect the demand for ordinary sizes. I do not hear of any instances in which a shortage, actual or anticipated, had any prejudicial influence on the lighting department, and in no case has there been any decrease in the sales of gas beyond that which can be fully accounted for by the special reasons above discussed. As regards clear glass, for a time the trouble was more acute than with mantles. But any amount of homemade goods are now on the market, comparable both in respect to quality and price, with the foreign made articles that formerly had control; and we are now well over the time of heaviest demand for these goods. There was some talk of increasing maintenance charges, but the general idea was to wait until after Christmas to see how things turned out. Although it meant some increase of working expenses for a time, we now find this was the wiser course, as any readjustment of prices would undoubtedly have led customers to consider the claims of other methods, and it is easier to let customers slip than to get them back again.

Accidents That Could Have Been Prevented.

Mr. James B. Douglas, manager of the Claim Department United Gas Improvement Co., is doing work of great value to the industry at large, not the least of which is the listing of preventable accidents that come under his notice, and for which he points out the remedy. This is the last tabulation:

1. While working on electric switch, employee's eyes were injured by flash. Suggestion: Goggles.
2. Employee cut finger slightly and neglected wound; infection followed, causing two weeks'disability. Suggestion: Prompt First Aid treatment.
3. Horse injured by stepping into open valve box; lid had been off for some time. Suggestion: Inspection; replacement.
4. Blacksmith working over anvil, and piece of steel entered eye; was not wearing goggles provided for him. Suggestion: Obvious.
5. Globe of an arc lamp on maintenance fell and burned merchandise. Suggestion: Wire net around globe.
6. Runway from platform not in place and employee deliberately pushed loaded truck from platform to floor, 16 inches lower; struck in abdomen by truck handle. Suggestion: "Taking care, not chances, means safety."
7. Loose brick from wall of generator house fell and struck man on head. Suggestion: Inspection; repair.
8. Employee using drill blew away from the hole an accumulation of steel cuttings, one of which entered eye. Suggestion: Goggles.
9. Employees left trap door open in store and proprietor fell into opening. Suggestion: See that trap doors are kept closed or guarded.
10. Fitter working near escaping gas while helper held candle; gas ignited and fitter was burned. Suggestion: Obedience to rules.

(*Continued from page 135.*)

Blast Furnace Gas to Heat Coke Ovens.

furnace gas are 497.1 cal., and from the coke-oven gas 477.1 cal. This with the greater volume of products of combustion gives better heat transfer from the gases to the furnace walls. Theoretical considerations are given to show that hot blast-furnace gas and heated air mix more readily than coke-oven gas and air, and give a longer flame more uniform in heating value. This allows of building coke ovens higher, without special arrangements for heating from the top, and also insures better and more uniform heating of the walls.

TABLE 2.—*Temperatures of the Charge.*

Heating with	Coke-oven gas.		Blast-furnace gas.	
Beginning of water evaporation in the center at 100° C.	End of third hour.	With 19.1 per cent. water.	Beginning of third hour.	With 13.1 per cent. water.
End of water evaporation.	End of thirteenth hour.		Beginning of ninth hour.	
	Temperatures, Degs. C.			
13th hour	100		570	
14th hour	130		650	
16th hour	200		750	
20th hour	430		820	
22d hour	720		900	
24th hour	950		1,000	
26th hour	980		1,050	
28th hour	1,050		1,080	

The heat balances of the 2 tests are shown in the following tables:

Heat Balance Test No. 1.—Per 1 Kg. of Dry Coal.

Incoming.	Calories.	Outgoing	Calories
1. Heat value in the gas.	763.6	1. In the coke	342.8
2. Heating the gas to 9.5°	2.6	2. In the steam	147.8
3. Air for combustion at 120°	26.4	3. In the waste gases	160.0
		4. Gasifying and heating tar and gas	43.1
		5. Radiation and work of coking	98.9
	792.6		792.6

Deducting 160 calories, the heat carried off the waste gases, 632.6 calories, were transmitted to the coal. If this quantity is called 100 the heat distribution is:

In the coke	54.22
In the steam	23.38
In the gas	5.81
In the tar	1.01
Distillation and radiation	15.58
	100.00

Heat Balance Test No. 2.—Per 1 Kg. of Dry Coal.

Incoming.	Calories.	Outgoing.	Calories.
1. Heat value in the gas.	729.9	1. In the coke	368.7
2. Heating of the gas to 11°	2.9	2. In the steam	152.1
3. Air for combustion at 120°	26.4	3. In the waste gases	148.9
		4. Gasifying and heating tar and gas	47.3
		5. Radiation and work of coking	38.5
	755.5		755.5

In percentages the heat distribution is:

	Per Cent.
In the coke	60.78
In the steam	25.07
In the gas	6.76
In the tar	1.04
In the distillation and radiation	6.35
	100.00

Intermediate Products for the Dye Industry.

[From *The Gas World*, London.]

The definite formulation of a Government scheme to take in hand the manufacture of synthetic dyestuffs has naturally aroused the interest of those who hope to be in any way associated with the development when the scheme is matured. Considering raw materials, there are two distinct branches to be taken into account—first, the supply of the coal-tar derivatives; second, the other chemicals required in the various manufacturing operations, and in the application of the dyes in the textile industry. It is with the first of these that coke-oven people are especially concerned, and it will no doubt serve some purpose if we give a general review of the products required, and the nature of the operations involved.

It is estimated that England consumes some £2,000,000 worth of dyes per annum, and of these barely one-tenth is produced at home. As far as coal-tar products are concerned, we have ample supplies available; but a considerable extension will be necessary before we are in a position to supply the other chemicals required. Fuming sulphuric acid and formaldehyde are, perhaps, the two principal products which are not extensively manufactured, and there must be considerable expansion in other chemical industries, particularly those producing mineral acids and alkalies.

The raw materials on the coal products side are, principally, benzene, toluene, anthracene, and naphthalene. These are all obtained by the fractional distillation of tar, but benzene and toluene are obtained in larger quantities from crude benzol recovered from the gas produced on coke plants. In the ordinary process of tar distillation the following fractions are usually recovered:

Ammoniacal liquor.
First runnings to 110° C.
Light oil 110° to 170° C.
Middle oil 170° to 230° C.
Creosote 230° to 280° C.
Anthracene 280° to 300° C.
Pitch residue above 300° C.

These fractions being varied according to the ultimate object of the distillar. If carbolic acid is wanted, the middle oil fraction is usually extended somewhat, whilst occasionally the anthracene fraction is largely divided between the creosote and the pitch. Napthalene settles out from the middle and creosote fractions on cooling. In order to recover the carbolic acid, the fraction containing it is agitated with a solution of caustic soda which takes up the acid and forms sodium phenolate. The sodium salt is then separately treated with sulphuric acid, forming sodium sulphate and crude carbolic acid, and the latter is then purified by filtration and re-distillation. From carbolic acid is manufactured salicylic acid, which is used in making various dyes, and also for pharmaceutical purposes, aspirin being a deriviative of it. Carbolic acid is also the source of picric acid or lyddite, obtained by the action thereon of strong nitric acid. Although picric acid itself is not easily explosive, great care is necessary in its manufacture, owing to the fact that it easily forms salts with alkalies such as potash or ammonia, which are violently explosive.

The benzol produced on coke oven plant is a complex mixture containing benzene, toluene, xylene, solvent naptha and other hydrocarbons. By re-distillation and purification, from it can be obtained pure benzene, toluene, etc. Benzene has a boiling point of 80.5° C., and is the source of aniline, which is the starting point for the production of many of the aniline dyes. By the action of strong nitric and sulphuric acids on benzene, nitrobenzene is produced, and this, by subsequent treatment with iron filings and hydrochloric acid, is converted into aniline. The first dye ever manufactured from aniline was aniline purple, or mauve, which is obtained by dissolving aniline in dilute sulphuric acid and adding bichromate of potash. This brings about oxidation, and a black precipitate is deposited, from which, by extraction with solvent naptha, mauve is obtained. In a similar way toluene is utilized for the production of other colors.

Anthracene is the basis of the alizarin colors. It is oxidized with sulphuric acid and bichromate of potash to anthraquinone, which is then purified and converted into its sulphonic acid. This, on fusion with caustic soda, is converted into the sodium derivative of alizarin, from which alizarin is obtained by the addition of acid.

Synthetic indigo is another example of the triumphs of chemical research. Prior to its discovery, enormous quantities of indigo were imported from India, but that trade is now practically nonexistent. Various processes exist for the manufacture of synthetic indigo, but in the two principal ones the starting point being toluene. A great deal of careful work was necessary to put scientific processes on a commercial basis.

Just as benzene acted on by nitric acid produces nitrobenzol, so toluene in a similar manner gives the well-known explosive, trinitrotoluene.

It will be seen, therefore, that a great deal of work has to be done to establish the coal tar dye industry on a sound footing. Other industries will necossarily benefit indirectly, and there seems to be a prospect of great development in the processes which are carried on in connection with by-product coke oven plants. There will be a big demand for the intermediate products, many of which have previously been obtained from abroad. Generally, the color manufacturers do not produce these intermediate products, and it would seem that the coke oven plant is a suitable place for their production. Extension to existing plant will, of course, be necessary, principally in the direction of further apparatus for refining the crude benzol produced, and for the manufacture of nitrobenzene and aniline. There is also to be expected some degree of development in the way of tar distillation and the production of naphthalene and anthracene.

There are, of course, numerous other extensions possible, but these are of more or less highly skilled chemical processes, and for the present it would, perhaps, be safer to leave these to more experienced hands, and not attempt to tackle too much in the way of new operations at once.

Burning Soft Coal Under Boilers.

"Hand Firing Soft Coal Under Power-Plant Boilers" is the title of Technical Paper 80, just issuse by the United States Bureau of Mines as a manuel for firemen employed in manufacturing establishments. It gives descriptions of methods of firing soft coal, and of handling fires so as to have the least smoke and to get the most heat from the fuel, and seeks to meet the needs of the man without technical education employed in plants of 1,000 to 2,000 horsepower capacity. For this reason the language used is simple, and technical terms have been avoided as far as possible.

Under "General Directions on Firing Soft Coal" are the following statements:

"When burning bituminous coal under power-plant boilers the best results are obtained if the fires are kept level and rather thin. The best thickness is four to ten inches, depending on the character of the coal and the strength of draft. The coal should be fired in small quantities and at short intervals; the fuel bed kept level and in good condition by spreading the fresh coal only over the thin places where the coal tends to burn away and leave the grate bare. Leveling or disturbing the fuel bed in any way should be avoided as much as possible, as it means more work for the fireman and is apt to cause the formation of clinker. Furthermore, while the fireman is leveling the fires a large excess of air enters the furnace, and this impairs efficiency.

"The ash-pit door should be kept open, and large accumulations of ashes in it avoided, as it may cause uneven distribution of air under the grate. When a coal shows a tendency to clinker, water should be kept in the ask pit. All regulation of draft should be done with the damper and not with the ash-pit doors.

"In firing, place the coal on the thin spots of the fuel bed. Thin and thick spots will occur with the most careful firing, because the coal never burns at a uniform rate over the whole grate area. In places where the air flows freely through the bed the coal burns faster than where the flow of air is less. This variation in the flow of air through different parts of the fuel bed may be due to different size of coal, accumulations of clinker, or the fusing of the coal into a hard crust. Where the coal burns rapidly, a thin place forms.

"Before throwing the fresh coal into the furnace note the thin spots, which in a well-kept fire can usually be recognized by the bright hot flame; the thick places showing either a sluggish smoky flame or none at all. In placing the coal on the thin places take a rather small quantity of coal on the scoop, for it is much easier to place the coal where wanted with small shovelfuls. The coal should also be placed in thin layers, because if you fill up the deep hollows in the fuel bed at a single firing, the fleshly fired coal may fuse into a hard crust and choke the flow of air, causing the fuel to burn slowly and forming new thin spots. If the high places in the fuel bed are missed on one or two firings the hard crust at the surface will burn through or crack, allowing more air to flow through, and the place will get back to normal condition.

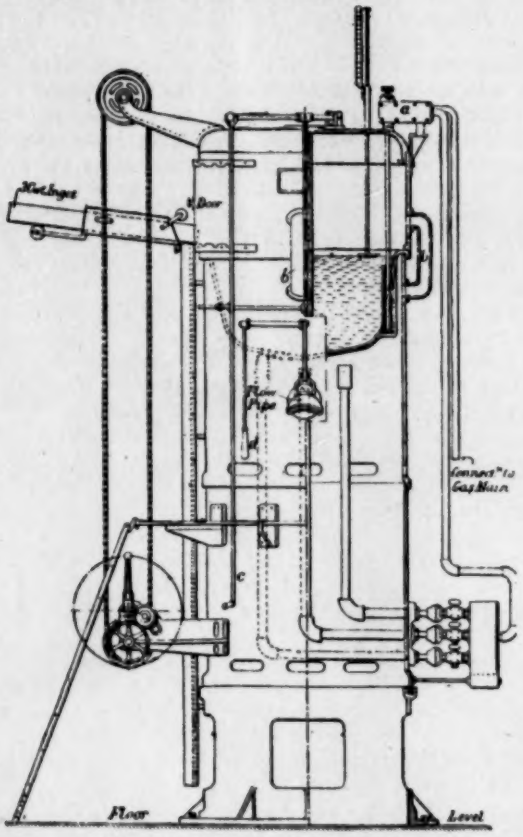
Of course, if the high spot is caused by clinker the flow of air will not be free until the clinker is removed. Whatever may be the cause of the high places in the fuel bed, remember that they are spots where the coal does not burn, and there is no use in placing more coal on them.

"If the firings are too far apart the coal in the thin spots may burn out entirely, allowing excess of air to enter the furnace in streams. If these streams of air do not properly mix with the gases from the coal only a small part of the air is used for combustion and most of it passes out of the furnace, depriving the boiler of considerable heat. If, for instance, air enters the furnace at atmospheric temperature, say 75° F., and leaves the boiler at about 575° F. it carries away the heat absorbed in raising its temperature 500° F, and this heat is lost to the boiler. Loss also occurs when holes form in the fuel bed, because pieces of unburned coal fall through the grate when the fireman attempts to cover the holes with fresh coal. Therefore, avoid the formation of holes by firings at short intervals, particularly if the fuel bed must be kept thin."

English Gas-Fired Melting Furnaces.

The gas-fired lead furnace illustrated has a patented automatic temperature regulating device, and has been used for all sorts of purposes where molten lead is needed. And the regulator permits of an instantaneous adjustment for any temperature from 100° F. to 2,000° by simple adjusting.

In this furnace the heating is effected by means of six bunsen burners connected to the low pressure supply through the regulating device marked *a*. The hot gases after traveling round the bottom and sides of the melting pot, pass through bent tubes *b* into the upper part of the pot, which is completely covered. By this means further heat is extracted from the gases before they finally pass to the chimney, and air is prevented from coming into contact with the molten metal. Loss of metal by oxidation is thus greatly reduced. The furnace is charged through a sliding door in the space above the pot, the doors opened and closed from the ground level by long hand-levers. The lead ingots are placed in an inclined tray attached to two endless chains, which pass round sprocket wheels, and by turning a handle the tray is raised to the charging door and the ingot slid into the melting pot.



Section of Furnace.

Another interesting detail of the furnace illustrated is a telescopic outlet pipe by means of which the molten metal is drawn into the receiver of a hydraulic press used for covering wire cables. The flow of the metal is controlled by a valve in the centre of the melting pot, operated by a hand lever *c*. When metal is to be run out of the furnace the outlet pipe is pulled out by means of the lever *d*, so that the nozzle comes over the receiver of the press, and the valve is then opened by the lever *c*. Gas burners are provided to prevent the metal from cooling in the pipe.

This furnace is 30 cwt. capacity, and will melt 3 tons every two hours.

Other special furnaces made by the same firm are listed as follows:

Furnace for White Metals.—Arranged to prevent oxidation, to dispense with skimming, and to regulate the temperature automatically, ensuring a great saving in metal, and minimum gas consumed (about 40 per cent. less than any other furnace.) As much metal can be dealt with in a day, as an ordinary furnace melts in a week, and the mixing and cleaning is done by the only thorough, and practical method. It is so simple and safe that a boy can be left in charge of it, as it is self-contained and for the most part automatic in action.

Brass Melting Furnace with Crucibles.—This furnace has a number of low pressure gas burners converging on the crucible, arranged to give an even distribution of heat, and this is augmented by the radiant heat reflected from the walls of the chamber to the crucible. In a test, 40 lbs. of metal was reduced in half an hour. The fumes continually passing over the surface of the metal have a purifying effect, and the castings have a very fine and bright appearance.

Pot Furnace for Melting Aluminum.—This furnace has proved a revelation, owing to the small waste during melting. It has a number of vertical burners playing upon the bottom of the pot and the fumes are carried from the lower chamber over the top of the metal through four side flues, keeping out the cold air and preventing oxidation. In a test with 41 lbs. of aluminum in an iron pot at a temperature at 900° there was a loss of but ¾ lbs.

Furnace for Melting Aluminum in Crucibles.—This furnace is a great improvement on anything hitherto attempted. With low pressure gas, without blowers or compressors, it will melt aluminum at considerably less cost than by high pressure gas. The life of the crucibles is longer and results more satisfactory in every respect. The saving in the crucibles alone, it is claimed, pays for the furnace in a very short time.

All these furnaces are fitted with the Monometer improved Low Pressure Gas Burners, which dispense entirely with air blowers; and give a heat as high as obtained by high pressure gas.

A Birmingham testing laboratory gives the following result of tests of these furnaces and regulator: Gas used during charging; 80 cubic feet per hour. The charge consisted approximately of half slugs and half ingots of type metal. Weight of charge, 4 cwts. 2 qrs. Temperature of molten metal during charging, 625° F. Gas consumption on completion of charging, 70 cubic feet per hour. Time taken to run off all metal, 45 minutes. Gas consumption during pouring, 60 cubic feet per hour. Temperature rose to and settled at 680° F. Cost of melting 4½ cwts., with gas at 1s, 4d. per 1,000 feet, less 5%, with furnace hot for start, 1.14d. Therefore cost per ton, 5.07d. Gas used for maintaining heat during pouring and for next charge, 0.68d. for 4½ cwt. Therefore cost for one ton, 3.02d. The regulator works well, and has a very delicate governing action.

Standardization of Gas Appliance Specifications.

The Gas Range Specification adopted by the National Commercial Gas Association in 1912, was completed except as to Clause 20 —"Cocks and Valves," and the committee reported in 1913 that this subject was still under investigation. As a result of these investigations the 1914 committee presented definite recommendation which they asked be made a part of the existing Gas Range Specification. Their report said:

"Your committee recommends that Clause 20 of the existing Specification be changed to read as follows:

"(20) *Cocks and Valves.*—Ranges are to be equipped with either lever handle cocks or wheel handle valves as ordered. Cocks and valves are to be tested, and required to remain tight and free from leaks under a pressure of 3 pounds per square inch.

"*Cocks.*—Where cocks are used they are to be of the type known as 'Standard Gas Range Cock,' and to be supplied with either wooden, composition, porcelain or metal handle as ordered. All

details and dimensions of this cock are to be in strict accordance with Exhibit 'C,' which accompanies and is part of this Specification, page —.

"*Valves.*—Where valves are used they are to be so constructed that the part carrying the gas nozzle or orifice and the part carrying the valve stem may be placed in the rail or manifold in such a way that there will be no chance for the valve stem and the nozzle to be out of alignment."

The standard cock referred to is similar in design to the cock now in very general use. A slight modification in the tail screw is made; i. e., the present tail screw holding the spring in place is dispensed with, and in its place two locknuts are used. The demand in some sections for a flat metal handle led the committee to include such a handle in its specification, without changing the design of the core head.

It is not the intent of the specification to limit the Standard Gas Range Cock to the fixed orifice type. While this type is preferred and its use recommended, the Committee recognizes that some companies will prefer the adjustable orifice. The detailed drawing of the Standard Cock, bears the following note:

"To be considered as complying with the specification, a cock equipped with an adjustable orifice must, in all respects, be in accordance with the details and dimensions given above, departing only therefrom in the design of the orifice or burner end, and in no way impairing the interchangeability of either type of cock with the same burner."

As there are so many different valves on the market at present, it is not thought wise or necessary to specify a standard valve and the requirement, therefore, has been limited to that given above.

It is pointed out that it would be unreasonable to expect manufacturers to immediately supply the new standard cock, and until existing stock is exhausted, ranges so equipped should be considered as complying with the specification in this respect. On the other hand, manufacturers are urged to make provision for supplying the new standard cock with as little delay as possible.

Other matters which came before the committee during the year and their disposition are as follows:

Marking Gas Ranges.—It has been suggested that some form of tag, badge or other mark be provided by the association, to be sold to the manufacturers at cost, guaranteeing the construction of the appliance in accord with the Standard Gas Range Specification. Careful consideration has led the committee to believe that this is neither feasible nor desirable. While in a general way the idea embodies some desirable points, the committee feels that it is not within the province of the association to undertake to issue any such tag or badge, nor would it be justified in assuming the responsibility for the proper use of such a mark. A purchaser of a gas appliance can require this guarantee of the manufacturer; and there is nothing to prevent any manufacturer from marking his appliances by a tag or badge, indicating that the range is constructed in accordance with the specification. The committee, therefore, limits its action to the suggestion that, where it is desired to mark the ranges, the following form of expression be employed:

"This range is guaranteed by the manufacturer to be constructed in accordance with the Gas Range Specification adopted by the National Commercial Gas Association and the American Gas Institute."

Nozzle Ends for Slip-End Hose Connection.—It has been pointed out that nozzle ends for tubing connection vary much in dimensions, shape and design, and frequently the rubber tubing end may not fit satisfactorily. The committee is of the opinion that nozzle ends should be of uniform design and dimensions so that the rubber ends will fit properly in every case. It is, however, a matter that should be thoroughly gone into before a standard design is fixed upon. The subject will, therefore, be further considered.

Names for Repair Parts.—The committee considers it useless to attempt to standardize names of repair parts because they differ so widely for different types and makes of appliances that no practical advantage would result; and most manufacturers have adopted individual or distinctive nomenclature, which for obvious reasons they prefer to use.

Iron and Steel for Gas Ranges.—The committee has had under observation the performance of various sheet metals for bodies and linings, trying to determine the most satisfactory metal for such use, where the material cannot be treated or coated to withstand corrosion, as mentioned in Clause 2 of the Specifications. They have not progressed sufficiently to enable the committee to report at this time.

New Methods and Appliances.

AN EMERGENCY LAMP.—The small lamp illustrated can be attached to any ordinary dry-cell battery, and is provided with a carrying handle and switch. It uses a tungsten lamp in a 2-inch bull's-eye reflector, and can be operated in any position, as there is no battery solution to spill. There are so many times that such a little appliance is useful.

FUEL VALUE OF WOODS.—According to a report of the U. S. Department of Agriculture the fuel value of 2 pounds of wood is about equivalent to that of a pound of coal. Hickory, oak, beech, birch, hard maple, ash, elm, locust, longleaf pine and cherry, have fairly high heat values and only one cord of seasoned wood of these species is required to equal one ton of good coal. A cord and a half of shortleaf pine, hemlock, red gum, Douglas fir, sycamore and soft maple equal a ton of coal; and two cords of cedar, redwood, poplar, catalpa, Norway pine, cypress, basswood, spruce and white pine.

Equal weights of dry, non-resinous woods, however, are said to have practically the same heat value regardless of species, and as a general proposition the heavier the wood the more heat to the cord. Weight for weight, however, there is very little difference between various species; the average heat for all that have been calculated is 4,600 calories per kilogram. A kilogram of resin will develop 9,400 heat units, or about twice the average for wood. Resinous woods therefore have a greater heat value per pound than non-resinous, the increased value varying with the resin content.

The available heat of a cord of wood depends on many factors. It has a relation to the quantity of resin it contains and to tho moisture present. Furthermore, cords vary as to the amount of solid wood they contain in the 128 cubic feet of space. A proportion of this is air spaces between the sticks, which may be considerable in a cord of twisted, crooked and knotty sticks. Out of the 128 cubic feet, a fair average of solid wood is about 80 cubic feet.

It is pointed out, however, that heat value is not the only test of usefulness in fuel wood, and since 95% of it is consumed for domestic purposes, largely in farm houses, such factors as rapidity of burning and ease of lighting are important. Each section of the country has its favored woods and these are said to be, in general, the right ones to use. Hickory, of the non-resinous, has the highest fuel value per unit volume of wood, and has other advantages. It burns evenly, and, as house wives say, holds the heat. The oaks come next, followed by beech, birch and maple. Pine has a relatively low heat value per unit volume, but has other advantages. It ignites readily and gives out a quick hot flame, but one that soon dies down, which makes it a favorite with rural housekeepers as a summer wood. The fuel qualities of chestnut adapt it particularly for work in brass foundries, where it gives just the required amount of heat and it is therefore in favor. Coastwise vessels in Florida pay twice as much for Florida buttonwood as for any other, because it burns with an even heat and with a minimum amount of smoke and ash. The principal disadvantage of the resinous pines is their oily black smoke.

STARTING SMALL GAS ENGINES.—In small gas or gasoline-engine-driven plants employees frequently expose themselves to considerable danger in starting engines by standing on the flywheel spokes, or thrusting levers between the spokes to pry the flywheel over until an explosion occurs. A safety crank used in Germany is thus described: "Besides disengaging when the engine starts, this crank is designed to throw out automatically if the engine 'back-fires' or the operator releases his grip on the handle. Engines rated at 6 h.p. to 15 h.p. may be started safely by opening the ignition circuit, turning the flywheel until a charge is drawn into the cylinder, then closing the ignition circuit and turning the wheel back against compression." When safety can be assured by the use of mechanical devices, there is certainly no excuse for employees running the risk inherent in such crude methods.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

MR. ISAAC BATTIN, one of the oldest gas engineers in this country, passed away peacefully on February 12, 1915, at West House, Swarthmore, Pa., in his eighty-fourth year, and was buried at the place of his birth, Millville, Pa. Mr. Battin was one of the pioneers in the gas industry, being associated first with his uncle, Joseph Battin, and employed in his early days at the plants in Elizabeth, N. J., Yonkers, N. Y., and Middletown, Conn. In 1861 he became superintendent of the Albany, N. Y., Gas Light Company, where he remained until 1887, when he entered the employ of the United Gas Improvement Company as superintendent and treasurer of the Omaha Gas Company, and he was the first of that companies employees to be retired, about five years ago, under their pension system. Mr. Battin was the oldest surviving member of the American Gas Institute. having been one of the first members of the American Gas Light Association, and he was an honorary member of the Iowa District Gas Association. His attendance for over half a century at the yearly gas meetings made him a wide acquaintance in the gas fraternity, and not a few gas men ascribe their success to his technical advice and to the influence of his exemplary life. He was a member of numerous Masonic bodies and other organizations, and is survived by his widow, three daughters and five sons, two of whom are prominent in the gas business—William I. Battin, Engineer of the Indiana Lighting Company, and T. Wilson Battin, Vice-President of the Civic Service Corporation. Mr. Battin was probably the JOURNAL'S oldest subscriber, and always its valued friend, and we extend to his family deep sympathy.

P. W. BROOKS & COMPANY, of New York City, have completed the purchase of the gas properties in Provo, Utah, and have organized the Utah Valley Gas and Coke Company as their operating company for Provo and vicinity. The new Board of Directors includes Fred W. Freese, who controlled the old company; W. H. Brereton, president of the State Bank of Provo; Thos. F. Pierpont, president of the Provo Foundry and Machine Company; A. W. Brooks, of the firm of P. W. Brooks and Company, Inc., and A. F. Beringer, secretary and treasurer. Mr. Beringer has also been chosen general manager, and will have charge of the company's activities. A considerable amount of extension work is planned for the coming year.

MR. H. M. BYLLESBY was the guest of honor at a dinner given by the employees of H. M. Byllesby and Company, February 16th, in the Oak Room of the Congress Hotel, Chicago, on the occasion of his fifty-sixth birthday. M. A. Morrison was toast-master, and among the speakers were: Messrs. J. J. O'Brien, R. J. Graf, E. C. Braun, R. G. Hunt, W. R. Thompson, H. W. Fuller, W. H. Hodge, B. W. Lynch, W. H. Clarke, F. H. Lane and W. C. McKenna. Mr. Byllesby replied in a delightful talk filled with suggestions, advice, optimism and reminiscences of some of the prominent men who influenced his work and ambitions, among whom were Thomas A. Edison, George Westinghouse, C. A. Coffin and William C. Whitney.

THE New England Commercial Gas Managers' Association held its annual meeting at Young's Hotel, Boston, on Wednesday, February 17th. Only routine business was transacted, there being no papers presented. The annual election resulted in the choice of the old officers to serve for another year. They are: President, Cyrus Barnes; Vice-President, A. A. Higgins; Secretary-Treasurer, J. C. Aaron.

THE first battery of 106 by-product coke ovens built by the H. Koppers Company, for the Lehigh Coke Company, South Bethlehem, Pa., started to make coke January 28, and the second battery of the same size is just beginning. When entirely completed the plant will embrace four batteries of 106 ovens each, or 424 in all, and will have a total capacity of coking 6000 gross tons of coal per day. As is known, the ovens were contracted for to replace a German installation which proved unsatisfactory. Two sets of the old ovens, consisting of 75 ovens each, are still in operation, but are to be replaced. With the new ovens there has been erected a new screening plant for separating the furnace and foundry coke and breeze, and a Koppers direct ammonia recovering plant. An engineer who made an inspection of the new installation, tells us, that the ovens are the smoothest working plant that he has ever seen.

THE employees of the Northampton, Mass., Gas and Electric Companies have organized a club to increase co-operation among their various departments, and to render better and more efficient service. The club will be known as the Public Service Club. After the business of organizing, short talks were given by heads of departments. Manager Day and Business Manager Monroe of the Gas Light Company gave brief talks on "Efficiency." Mr. Treat, chief engineer at the Electric Station, spoke on Power Plant Economy, and Mr. Ellis, business manager for the Electric Company on Public Service. The following officers were elected: President, W. C. Ellis; vice-president, Alfred Asher; secretary and treasurer, Miss Wallace.

Two farce comedies were presented by the Flatbush (Brooklyn, N. Y.) Gas Company Employees Association at their annual entertainment and dance held at the Cortelyou Club, Bedford avenue and Avenue D, The first, a burlesque war drama, had a cast of twenty, and including two character sketches, a blackface specialty by George Young and an Italian portrayal by Michael Zebro. The second part, "A Manager's Trials," with James A. Kenny as the manager, scored a big hit. Herbert J. Robinson as Mlle. De Limbes, a high kicker and John B. Anderson as Eudoxia Persimmons, a timid little girl, handled their parts well. Charles G. Seeba was stage director and George Major furnished the music. Dancing followed the performance. The cast for "To Arms" included: Walter Shields, Alfred G. Gledhill, Frank Killorin, Thomas McNeeley, Joseph Leonard, Harry Dreeke, Edward Westburgh, Martin Bierne, Michael Zebro, George Young, Albert Owens, Ray Wiggins, William Brameloh, Edward Carritt, Frank Quinn, Herbert Moran, William Moran, George Swandewel, Joseph Connors, Bertram Connaughton, Lester Murphy. Those who took part in "A Manager's Trials" were: James A. Kenny, Allen J. Lee, John L. Blanchard, Pearl A. Brown, Richard H. Ropke, Elmer E. Glanz, William J. Carberry, Joseph P. McTague, Richard J. Harmon, Herbert J. Robinson, John B. Anderson, Charles G. Seeba, John A. King, Lewis S. Troell and George Major.

MISS ETHEL A. CHURCH is in the midst of a very successful course of cooking talks with demonstrations for the Gas Light Company of Augusta, Ga. Miss Church is one of a number of young Chicago women who have made a name as capable domestic science instructors.

IT is announced that George G. Welch, for 20 years connected with the Dover (N. H.) upblic utility companies, is to sever his connection with the Twin State Gas and Electric Company on March 1. Mr. Welch entered the employ of the Consolidated Light and Power Company in 1895 as cashier. In 1901 he was made a clerk in the Dover Gas Light Company, and two years later was elected treasurer of the United Gas and Electric Company, and in 1905 was made assistant treasurer and assistant manager of the old Dover Gas Light Company. In 1906 when the company changed hands, and the name of the Twin State Gas and Electric Company was given it, he continued as assistant manager of the new corporation, so he has had twenty years service in what is practically the same company in Dover. The present good feelings of the public toward the corporation have been largely promoted through the efforts of Mr. Welch, whose personal popularity is very great.

PLANS are being worked out in Kingsburg, Cal., for the formation of a company to furnish gas to the residents of Reedley, Sanger, Parlier and Lingsburg. Levi Garrett, president of the Board of Trade, and R. K. Madsen, P. N. Madsen, W. L. Lohman, W. Parlier and L. M. Say are interested in the movement.

THE Oshkosh Gas Light Company has employed experts to make tests of the bonding of the rails of the Wisconsin Electric Railway Company's lines, as the leakage of electricity from the rails is causing electrolysis of the gas mains.

MR. GUY E. MITCHELL has begun his duties as manager of the Municipal gas and electric light departments of Westfield, Mass, succeeding Thomas T. Logie.

UPON completing his examination of the Grand Rapids and the Kalamazoo plants Mr. William Newbigging sailed at once for London, and will prepare and forward his formal reports to the municipal authorities after he reaches home.

GAS service has been inaugurated from the plant of the North Platte (Neb.) Electric and Power Company, and both electricity and gas will be furnished the city within a short time. The work was

delayed somewhat by bad weather, but with the opening of spring will be rushed to completion.

THE city commission of Dayton, O., has begun consideration of gas rates, with a view to fixing the price to be charged by the Dayton Gas Company when its present 10-year rate agreement expires on April 26. Should the rate fixed by the commission be considered unfair, they may take the case to the Utilities Commission. It is considered probable that the gas question will go to the commission not only upon the question of rates, but also that of increasing the natural gas service.

ANNOUNCEMENT has been made that the Contra Costa (Cal.) Gas Company plans to extend its lines as far as Crockett, supplying Port Costa, Eckley, Crockett and Valona. Work will start as soon as the Martinez service has been inaugurated.

THE Public Service Gas Company listed the re-argument of the 90-cent gas rate on the March calender of the New Jersey Court of Errors and Appeals. George L. Record, counsel for Paterson and Passaic, and Frank Sommer, counsel for the Board of Public Utility Commissioners, have been notified of the listing of the case. The Court reversed itself a month ago on the 90-cent decision and granted a reargument.

ABOUT 160 employees and friends of the New Bedford (Mass.) Gas and Edison Light Company attended the clambake held recently in the basement of the gas company's building. After the spread an entertainment was given in the hall, in the form of boxing bouts. Young Slocum met Kid Sullivan for three rounds and Battling O'Brien went the same distance with Young Lagasse. Edward Hall rendered selections on the piano. The committee in charge included Charles Carroll, Fred Smiley and Martin Gerry.

FOR the first time in the history of Holyoke, Mass., the Municipal Gas and Electric Department offered appliances for sale, a gas water heater. At the end of the first week of this experiment more than 600 heaters had been sold, and the demand was so large that a store was opened in High street, where those who want the heaters might view them and place their orders. The success attendant on this sale will probably lead the department to try the sale of other appliances, and the result of this may be the establishment of a branch to sell all sorts of gas and electric appliances.

MR. NISBET LATTA is preparing a third edition of his American Gas Engineering Practice, which will be issued about March 15th by D. Van Nostrand & Co.

THE Harrisburg Security Company has advertised that it intends to sell the Northumberland Gas Company's plant, Sunbury, Pa., at public sale on March 9. The gas company recently had a receiver appointed, and the security company is foreclosing because of the nonpayment of the principle of a mortgage given by the Northumberland Gas, Heat and Fuel Company.

MR. R. C. GRAVELEY, manager for the Western United Gas and Electric Company, in La Grange, Ill., has resigned by reason of ill health, and has been succeeded by C. J. Carlson, who has been connected with the Aurora division of the company.

THE biggest gas steal recorded is that alleged in the suit of the Public Service Gas Company against a consumer in Jersey City, N. J., for 5,216,700 cubic feet of gas taken since 1907 through a connection from the service. From June 1, 1907, and Jan. 28, 1915, it is alleged by the deponent, the defendant "consumed with intent to defraud" the gas of the company in the operation of a steam boiler, heating plant, gas range and gas light.

IT is announced that construction of a gas plant and distribution system for Marion, Ill., will be started some time this month by the Western United Gas and Electric Company, of which Hon. Ira C. Copley is president.

SPECIFICATIONS for bids on 130,000,000 cubic feet of gas to be used in street and building lighting in Baltimore, Md., for 1915 have been prepared by the City Superintendent of Lamps and Lighting. This gas will be used in 10,400 street gas lamps and lamps in public buildings. The present price for street lighting is 67½ cents a thousand cubic feet, and for buildings 75 cents.

UTILITIES COMMISSION NEWS.

RULES REGARDING INSPECTION.—An electric corporation may not arbitrarily cut off current from a consumer without evidence that his wiring is unsafe, merely because he refuses to furnish affirmative evidence of continued safety in the form of a certificate from a designated unofficial organization like the Underwriters' Association; according to an order of the up-state New York Public Service Commission. The Commission says that it is doubtless the right and probably the duty of the corporation in the interest of public safety to satisfy itself that a private electric installation is safe before it supplies current thereto. and to impose regulations for its continued safety, but thinks that in the present case it went too far, and orders the service supplied as previously.

The Great Bear Light and Power Co., had supplied a hotel with current for a number of years when, in December, it sent out a circular letter informing its patrons that the Courts had recently handed down decisions against an electric light company who had furnished current to consumers without Underwriters Inspection Permission, holding them responsible for fires traced to electric wires; and requested customers to secure permits from the Secretary of the Underwriters. This consumer refused to comply, claiming the company had been supplying him right along but did not, however, refuse to allow the company's representatives to inspect the wiring.

ILLINOIS CHANGE.—Mr, Robert M. Feustel, Chief Engineer of the State Public Utilities Commission of Illinois, has tendered his resignation to take effect March 1st. Mr. Feustel is a member of the firm of Sloan, Huddle, Feustel & Freeman, Consulting Engineers of Madison, Wis., and was formerly Assistant Chief Engineer of the Railroad Commission of Wisconsin. His withdrawal at this time is for the purpose of resuming his consulting engineering practice which he temporarily relinquished in order to organize the engineering department for the Illinois Commission. During the past year the organization of the engineering staff has been effected, rules establishing standards of service for various types of utility properties prepared for the Commission's adoption, and the general method of collecting data for rate making cases has been outlined, which latter information the Commission will issue in pamphlet form in the near future. It is understood that the Commission has not as yet determined upon a successor to Mr. Feustel.

MUST PAY FOR PLAY HURTS.—Death or injury resulting from "skylarking" among employees is covered by the Employers' Liability Act. and must be compensated for accordingly, is the ruling by the New Jersey Supreme Court, given in the case of the dependents of William Hulley, a journeyman plumber, against his employer. Hulley died a year ago from injuries sustained while "fooling" with a fellow employee, and the court awarded his dependents $6.20 a week for 300 weeks. An appeal was taken on the ground that the injury and death did not arise from Hulley's employment.

The Supreme Court decision is that it is but natural to expect young men to play pranks upon one another while at work, and that an employer of labor takes certain risks from this source.

WILL TRY TO MAKE GAS at $1.—President Clarke of the Northampton Gas Light Company has sent to the Massachusetts Gas and Electric Light Commission the following communication concerning the recent recommendation of the commission that the net price of gas be reduced from $1.15 to $1 per 1000 feet:

"The directors of the Northampton Gas Light Company acknowledge the receipt of the decision of the board, recommending that on and after February 1, 1915, the net price of gas sold by the Northampton Gas Light Company should not exceed $1 per 1000 cubic feet. The directors have carefully considered the recommendation of the board and believe that, unless the future furnishes more favorable conditions for operation than it has been possible for the company to operate under during the last year, the acceptance of the recommendation would not permit the company to make adequate profit on the property and money it has invested, and which it devotes exclusively to the public purpose of making and selling gas.

Ths directors, however, have decided at the present time to accept the recommendation of the board and to make an effort to so operate the company under present conditions that adequate return may be made on its investment. If this effort should not be successful the directors will immediately ask the board for authority to raise the price of gas.

Financial Notes.

THE following are the gross earnings and operating expenses of the LACLEDE GAS LIGHT COMPANY, including maintenance and taxes for eight years ending December 31 :

	Gross.	Expenses	Oper. Ratio.
1907	$3,762,043	$2,084,766	55.4%
1908	3,823,104	1,992,580	52.1
1009	4,142,350	1,971,902	47.6
1910	4,501,124	2,308,863	51.3
1911	4,342.036	2,125,033	48.9
1912	4,444,498	2,139,102	48.1
1913	4,533,491	2,207,238	48.7
1914	4,629,689	2,245,592	48.5

The next table shows the amounts deducted for depreciation reserve, the balance for dividends and the percentages earned on both classes of stock for the same period :

	Dep.	Surplus for div.	Per cent. on pfd.	Per cent. on com.
1907	$25,145	$680,354	27.20	6.53
1908	50,865	777,421	31.10	7.68
1909	268,707	897,647	35.90	9.09
1910	217,234	976,601	39.06	10.02
1911	251,485	978,041	39.12	7.97
1912	266,217	1,023,822	40.95	8.40
1913	272,248	998,600	39.94	8.16
1914	288,521	1,002,447	40.08	8.20

THE CONSOLIDATED GAS COMPANY has declared the regular quarterly dividend of 1½% on its stock, payable March 15 to stock of record Feb. 10.

GROSS revenue of GEORGETOWN GAS LIGHT COMPANY for 1914 was $178,308, with operating expenses of $61,091 and net earnings of $50,202. Taxes were $14,440 and interest charges $23,672, leaving a surplus of $12,090, from which dividends of $7,500 were paid. The amount set aside for depreciation was $1,814, and the general amortization charge was $8,036 for the year. Gross earnings were made up of $157,658 from the sale of gas, $19,450 from sale of by-products and $2,000 from miscellaneous sources. Company has $312,000 of bonds, $213,000 certificates of indebtedness, $82,000 of bills payable and $5,593 accounts payable.

THE FALL RIVER GAS WORKS CO., has been authorized to issue at the price of $200 a share, as determined by its directors, 3220 shares of new capital stock of the par value of $100 each; proceeds to be applied to the payment and cancellation of an equal amount of the obligations of the company represented by its promissory notes outstanding on Dec. 31, 1914, and to no other purpose. If any shares remain unsubscribed for by the stockholders entitled to take them, all such shares must be offered for sale at some suitable place in the city of Boston, notice of the time and place of sale to be published in the Boston "Daily Advertiser," a newspaper published in the city of Boston, and in the Fall River "Evening News" and the Fall River "Daily Globe," newspapers published in the city of Fall River.

PREFERRED stock of the UTAH GAS & COKE COMPANY has been increased from $500,000 to $700,000, 2000 shares of stock being added, at a special meeting of stockholders. There now are 32,000 shares of stock, of which 25,000 are common stock and 7000 preferred.

THE UNITED GAS AND ELECTRIC CORPORATION has sold to Drexel & Co., of Philadelphia $5,500,000 three-year 6 per cent. gold notes, $500,000 to he paid on or before July 1, 1916, and $500,000 each six months thereafter until $2,000,000 shall have been paid, leaving a balance of $3,500,000 maturing April 1, 1918. The company also announces that it has sold to Bertron, Griscom & Co. of New York and Philadelphia; and Reilly, Brock & Co., of Philadelphia $2,350,000 of thirty-year collateral trust 6 per cent. bonds.

THE BROOKLYN UNION GAS COMPANY has declared the regular quarterly dividend of 1½% payable April 1, to holders of record March 17.

THE STANDARD GAS COMPANY, of Monmouth County, N. J., has received formal permission to issue $22,193 of its bonds which the State Commission claimed had not been issued in accordance with the law. The Company was formed by consolidating the Standard Gas Company of Keyport and Matawan, with the Atlantic Highlands Gas Company. Under the terms of the consolidation, a mortgage of $1,000,000 was created and an issue of bonds thereunder was approved by the utility board to the extent of $630,000 to be used to refund outstanding bonds of the subsidiary companies, to liquidate existing debts, and to provide for additions and extensions then necessary. This application for approval was made last November, the proceeds of the bonds to be used for extensions and additions, in addition to those authorized at the time of the consolidation. The Commission shows that the bonds issued under the approval of 1913, to the amount of $98,000, are outstanding as collateral for notes, to the amount of $65,492. In its present application the company states that the bonds are to be used as collateral, or for the purpose of obtaining funds to liquidate outstanding indebtedness.

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